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UNIT COST ANALYSIS OF THE EDUCATIONAL EXPENDITURES
OF THE COUNTY OF THORHILD 1967-1968

by



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A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled UNIT COST ANALYSIS OF THE EDUCATIONAL EXPENDITURES OF THE COUNTY OF THORHILD 1967-1968, submitted by John Lyon Myroon, in partial fulfilment of the requirements for the degree of Master of Education.

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ABSTRACT

The purpose of this study was to conduct an analysis into the financial operations of a school authority for one school term. Since this thesis was the first in a series, two stages of investigation were required: the development of a performance-based model for establishing an uniform unit cost analysis methodology appropriate to school systems, and second, the application of this model to the educational-financial operations of the County of Thorhild for the 1967-1968 school term.

The model took the form of three separate phases: (1) anticipatory preparation, (2) procedural methodology, and (3) findings and analysis. Anticipatory preparation entailed; (1) development of an uniform terminology, (2) determination of a performance-based expenditure classification system, and (3) determination of the accounting basis. Procedural methodology involved the determination of (1) the period of time, (2) an appropriate pupil unit, (3) the areas to be included, (4) the proration basis, (5) the actual or estimated expenditures, and (6) the per pupil costs in the various chosen areas. Findings and analysis involved, first, the extrapolation and recording of significant findings and second, the analysis of the findings in order to make comparisons, predict trends and draw inferences.

The aggregate data was extracted from various financial accounting statements and records in the Thorhild county office

as well as from primary sources. A faculty workload survey form was utilized to procure data on the instructional staff. Proration ratios, the primary tools for handling cost data, were derived from primary sources and County policy. Through the prorating methodology, aggregate costs were converted into per pupil costs by county, schools, grade Divisions, subjects and program routes.

"Instructional salaries," the greatest single cost incurred by school districts, accounted for almost 60 percent of total per pupil costs. The second, third and fourth highest per pupil costs, in ascending order, were "transportation," "local administration," and "central office administration." Per pupil costs by school were consistently higher in the two schools with the lower enrolments. Per pupil costs by grade Division increased greatly as the grade levels ascended from Division I through IV. The relationship between cost per pupil and enrolment appeared to be curvilinear.

Reading, Arithmetic, Enterprise and Language cost the most per pupil in Divisions I and II. Physical Education, Opening Exercises, Art, Music and Health cost the least per pupil in Division I while Physical Education, Music, Art, Opening Exercises and Health cost the least in Division II. Mathematics, Language, Science and Social Studies cost the most per pupil in Division III while Guidance, Health, Art, and Physical Education cost the least. Ukrainian, Science, Physics, Mathematics, French and Biology cost the most per pupil in Division IV. This study showed that high school

matriculation and diploma program routes result in similar per pupil costs.

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CHAPTER I

SIGNIFICANCE, PROBLEMS, DELINEATION AND ASSUMPTIONS

I. INTRODUCTION

Public school costs in Canada have increased sharply since World War II. Between 1945 and 1965, the estimated average increase in educational expenditures was 13.5 percent, while ". . . as a proportion of the Gross National Product, educational expenditures have risen two and one-half times in the same period." (35, p.12) In 1967, a record of 7.3 percent of the Canadian GNP was attributable to education (33, p.2) while in 1968, the estimate was 9 percent (35, p.1)

There are many indications that this trend of rapidly increasing school expenditures will continue. The National Education Association, in its publication What Everyone Should Know About Education avows that, "Substantial increases for schools and other educational institutions and agencies are both necessary and wise." (40, p.57) Panel Report V of the Rockefeller Brothers' Fund states, "The Nation's need for good education is immediate, and good education is expensive." (39, p.33) Hansen predicts that ". . . expenditure in education in Canada will continue to increase substantially during the 1970's." (36, p.1) These increases in educational expenditures have resulted in an increased interest and surveillance by the public, as is witnessed by recent reporting by the mass communications

media.

The two conditions of rising costs and increased public interest and surveillance necessitates, firstly, that educators astutely invest the available financial resources and, secondly, that all educational expenditures be accurately summarized, analyzed, and the results be meaningfully reported to members of the educational system as well as to the concerned public. Such summarizing, analyzing and reporting entails the utilization of sound and valid financial accounting principles and procedures.

Unit cost analysis or unit cost accounting is an approach which reflects sound financial management and can also insure the maintenance of proper public support. As Mort, Reusser and Polley point out, "Accurate analysis of costs is essential to effective control of the educational enterprise and is an aid in explaining the work of the schools to those who are interested." (20, p.40).

II. BRIEF DESCRIPTION OF UNIT COST ANALYSIS

An all encompassing description of unit cost accounting or unit cost analysis is provided by Fowlkes and Hansen:

Cost Analysis is the process of studying the total costs of public education for a given community, state, or area for a given year; trends in total school costs; the costs of specific services or subjects, e.g., transportation or English; the cost of education by grades or levels, e.g., elementary school costs, secondary school costs; costs of nonattendance; costs and tax-paying ability; cost and size of school; reasons for increased costs; reasons for decreased costs; need for increased costs and need for decrease in costs. (8, p.471)

That is, unit cost analysis attempts to measure the amount of expenditure for programs, performances, activities or outputs based on a standard measurable unit. These per unit costs are then analyzed in light of existing conditions and variables. Finally, the analyzed results are used to speculate on reasons for differences in costs, ways to increase efficiency, means of improving the educational program, assistance in formulation of the budget, deployment of results to the public to elicit their support to predict future trends, as well as a host of other reasons.

Unit cost analysis, for the purpose of this study, refers to the detailed determination of designated educational expenditures for specific functions, activities, services or performances, the conversion of these expenditures into unit costs on a pupil enrolment basis, and the examination and analysis of the resultant per pupil unit costs.

III. SIGNIFICANCE OF COST ANALYSES STUDIES,

AS A WHOLE

Optimal Quality, Benefit and Opportunity

Cost analyses studies can be of great value to school boards, school business administrators, teachers, school administrators, and the public. First, because resources or funds for educational spending are limited, it is important that expenditures result in the greatest possible return. Ernest Van Den Haag offers a fundamental rule of educational investment:

The fundamental rules for investment (including investment in education) are; as long as an additional investment yields net returns (returns exceeding its costs) it is desirable; when the net returns on one investment exceed net returns on alternative investments it is to be preferred, for this indicates that more highly valued services can be rendered by this allocation. When all additional investments yield the same return, optimum allocation has been achieved. (24, p.11)

Further, Mort, Polley and Reusser wrote that operating efficiency can be attained ". . . either by securing the same materials or services at a lower cost or by securing better materials or service for the same cost." (20, p.401) Fowlkes and Hansen feel that unit cost analysis can result in optimal returns for educational investment:

Maximum educational opportunity within limits of financial ability and a reasonable guarantee of operating efficiency that obtains, as nearly as possible, maximum value per dollar spent for public education might well be adopted as a working charter for all those responsible for business management of public education. Such a charter can be maintained, only if financial accounting systems for schools are such that cost analysis of the type suggested can be made. (8, p.472)

Therefore, unit cost analysis can provide information which could assist in the investment of limited educational funds in such a way as to achieve optimal quality and benefit from the educational program, maximum educational opportunity, and an unequalled operating efficiency.

Adequacy of Educational Program

The establishment and maintenance of an adequate and sufficient educational program must be one of the prime priorities of all educational and lay personnel. Cost analysis data can assist

in the development and maintenance of an adequate educational program; this is especially true in an educational environment of change. Mort, Reusser and Polley state, "The cost of the various elements in the school program is a necessary item in case changes in the program are contemplated." (20, p.401) In making decisions about program changes, choosing the best alternative is enhanced by the curriculum decision-maker being aware of all cost figures. John Vaizey writes:

There is no administrator in the world who has more resources than he can use; and when resources are limited, choices have to be made. It is essential that these choices are based on an accurate assessment of the cost situation. (41, p.11)

Knezevich writes that cost data assists in the administration of the educational program as well as in the entire administration of schools: "The fundamental purpose of unit cost analysis is to present and interpret cost data as an aid to administration of public education." (13, p.204)

Adequacy of Revenues and Expenditures

Cost analyses within school systems can assist in determining ". . . the adequacy or inadequacy of school expenditures by totals or by specific factors." (8, p.47) For example, if it is found that a particular course which is considered to be highly relevant to the educational process and is not achieving the desired ends, in fact, costs the least per pupil, then a re-assessment of the adequacy of the expenditures in that course would be necessary. Mort, Reusser and Polley state, "The knowledge of the cost of an

element in the school program is a factor in the determination of the policy that is adopted for its management." (20, p.400) Cost analyses, therefore, can reveal the adequacy or inadequacy of school revenues and expenditures.

Meaningful Expenditure Data

Since education is a public service, the supporting public is demanding that it be informed in meaningful terms of the details of educational expenditures. Gross cost figures like \$750,000.00 are meaningless to parents and other lay personnel, while figures like \$232.15 per grade 10 pupil per year for "direct instruction" or \$4.78 per pupil grade 3 per year for "instructional supplies" are much more meaningful and easier to understand. The latter figures result in a truer understanding of the educational program in terms of cost, not only by the supporting public, but also by boards of education, school administrators, business managers, education departments, and teachers. Therefore, cost analysis can provide all educational personnel with an accurate picture of pupil costs per course, program, grade, school or system which can be used as a basis for re-evaluation of the existing program.

School Business Management

Cost analysis figures, claim Fowlkes and Hansen, form a "valid basis for evaluating the competence of school business management." (8, p. 471) If two schools, identical in all aspects including educational quality, could be isolated, then cost analyses

could reveal which of the two schools was more resourceful, or efficient in planning educational expenditures.

Public Support for Education

System cost analyses can also establish an appreciation by the business administrators, the board and the public, of the necessity for adequate school revenues. Cost analyses can reveal whether or not the existing support programs provide for more or less educational opportunity than the minimum.

Preparation of the School Budget

Cost analyses are of paramount importance in assisting in the preparation of school budgets; especially for those activities which can be reduced to measurable units. That is, instead of providing for an estimated percentage increase over last year's budget, the budget committee can make very specific allocations of monies to particular units. The same would be true for decreases in the budget. Ovsiew and Castetter reveal the importance of cost analyses in budget preparation when they state, "One estimate indicates that detailed and accurate cost accounts can reduce the time and labor needed in budget preparation by 90 percent." (22, p.287)

In summary, unit cost analyses studies are of great significance in that such studies can provide the data which can assist a school jurisdiction in:

1. achieving an operating efficiency which results in optimal quality, benefit and opportunity being attained from

limited resources,

2. establishing and maintaining an adequate and sufficient educational program,
3. determining the adequacy or inadequacy of school revenues and expenditures,
4. meaningfully informing concerned persons about educational expenditures,
5. evaluating the competence of school business management,
6. establishing an appreciation in the public for supporting education, and
7. preparing the school budget.

IV. STATEMENT OF THE PROBLEMS

The Main Problem

The major problem of this thesis was to conduct an analysis into the financial operations of a school authority in the Province of Alberta for one complete school year. Since this study was only the first in a series of studies, the criterion for selection of a school authority was based on availability of data and the familiarity of the researcher with the operations of the selected school jurisdiction. Consequently, the County of Thorhild, where the writer was previously employed for several years, was selected as the school system to be analyzed. The September 1967 through August 1968 school year was selected over the 1968-1969 term because the 1968-1969 expenditures would be unreal for high school centralization was

taking place during the term.

The study consisted of two distinct stages:

1. development of a model for a uniform cost analysis methodology appropriate to school systems,
2. application of this model to the analysis of educational operations of the County of Thorhild for the 1967-1968 school year.

The Sub-Problems

A number of sub-problems were investigated in the second stage of the study:

1. What were the educational expenditures or costs per enrolled pupil in the County of Thorhild for the 1967-1968 school year?
2. What were the educational costs per enrolled pupil in each of the four schools in the County of Thorhild?
3. What were the educational costs per enrolled pupil in each grade division in the County of Thorhild?
4. What were the educational costs per enrolled pupil in each grade division in each of the four schools in Thorhild County?
5. What were the instructional costs per enrolled pupil by subjects taught in each of the four schools?
6. What were the educational costs per enrolled pupil of various program routes in each of the four schools in

the County of Thorhild. The specific program routes considered in the High School were matriculation and general diploma while program routes in Divisions I, II, and III were considered by grade.

V. DEFINITIONS

The development of a uniform unit cost analysis terminology was essential since it is expected that subsequent cost analyses studies will utilize the methodology established in this study. Valid comparisons of costs among various school jurisdictions can be made only if the cost analysis methods were based on uniform terminology and classification. A comprehensive discussion of terminology used in educational unit cost analysis will follow in Chapter II.

VI. DELINEATION OF THE STUDY

Delimitations

1. The study is delimited to expenditures made in the County of Thorhild for the year 1967-1968.
2. The analysis of expenditure is delimited to Radway, Redwater and Thorhild within the County of Thorhild.

The above two delimitations strongly suggest that there are no valid grounds for drawing inferences or for predicting trends. Likewise, these delimitations unequivocally imply that the per pupil unit costs cannot be inferred as population parameters.

Limitations

This study was limited by the following:

1. operating expenditures were defined in such a way as not to include debt charges, interest, depreciation and capital outlay;¹
2. only regular day students were included; that is, the study did not take into account the handicapped, community services or adult classes;
3. most of the proration statistics, especially for personal services rendered, were estimated by primary source or the person from whom the service was received.

VII. ASSUMPTIONS

Assumptions are basic to any research endeavor. Unit cost analysis theory, however, is heavily laden with guiding assumptions. For the purpose of this study, the following assumptions were made:

Proration Assumptions

The area of cost analysis which is most dependent upon assumptions is prorating procedures. Following are the basic proration assumptions of this study:

1. where personal services were concerned, the proportion

¹The exclusion of these expenditure categories is a well established cost analysis procedure.

- of time in any activity, as estimated by the primary sources, was an accurate reflection of the actual costs,
2. the bases chosen for prorating expenditures were equitable, adequate and realistic.

Other Assumptions

1. The records from which the necessary cost data and related information was taken were duly complete and accurate.
2. Any expenditure category resulting in a County per pupil cost of less than twenty-five cents was insignificant for the purpose of determining per pupil cost.
3. Higher per pupil costs in one school do not necessarily imply that the quality of education is better in that school.²
4. The various estimated functional-character object unit costs of education per enrolled pupil are comparable among the four schools included in the study. This assumption is validated by the fact that precise uniformity was achieved in the estimated per pupil costs in each school and that the variables affecting costs

²Some research, however, seems to indicate that higher per pupil costs necessarily means better quality, regardless of what the measure of quality happens to be. For example, Ovsiew and Castetter write, "Research shows, for example, that as expenditure levels increase the quality of education improves." (22, p.290) J.K.Norton, in summarizing a series of research, states, "A number of lines of research indicate that higher per pupil expenditures is a major and essential factor in achieving quality of education, regardless of one's definition of quality." (21, p.80)

are very similar in the mentioned schools.³

VIII. SUMMARY

Public school costs have been increasing rapidly since World War Two. This increase in expenditures has resulted in an increased public interest and surveillance. These conditions are forcing school administrators to plan educational expenditures wisely and to report expenditures in a meaningful way. Cost accounting and unit cost analysis are tools which can be utilized to accomplish these goals.

Unit cost analysis can best be described as the process of determining designated educational expenditures for specific functions, activities, services or performances, the conversion of these expenditures into per enrolled pupil unit costs, and the examination and analysis of the resultant per pupil unit costs.

The main problem of this thesis was to conduct an analysis into the educational-financial operations of the County of Thorhild for the 1967-1968 school term. The successful attainment of this major objective was executed in two separate stages: (1) development of a uniform model which established the methodology and

³All grade levels in all schools were similar except Division IV in Newbrook School. Division IV in Newbrook School includes only grade 10 while Division IV in the other three schools include grades 10, 11 and 12. Only a grade 10 program was offered in high school in Newbrook because the initial "phasing out" step of the high school had been achieved.

research design of this and following similar studies and (2) application of the model to an analysis of educational expenditures in Thorhild County. A number of sub-problems had to be investigated in the second stage of this study: the determination of per enrolled pupil educational costs (1) in Thorhild County, (2) in the four schools of Thorhild County, (3) in each grade division in Thorhild County, (4) in each grade division in each of the four schools, (5) in each subject taught and, (6) in various program areas in each of the four schools.

IX. SUCCEEDING CHAPTERS

Chapter II is concerned with the first stage of this study while Chapters III, IV and V are concerned with the second stage. Chapter II establishes a uniform model of unit cost accounting or unit cost analysis, based on the performance analysis approach, that could be utilized by any school system. Chapter III presents the specific procedures used in this study for procuring data, prorating expenditures to grades, grade divisions and schools and determining per pupil costs. Chapter IV presents the various per pupil unit costs as well as some comparisons of costs, while Chapter V puts forth the meaningful findings and suggests implications and further research.

CHAPTER II

THE RESEARCH DESIGN

I. INTRODUCTION

The first stage of this study was to design a model which would establish a uniform methodology upon which this and other cost analyses studies could be based. The design of such a model was of importance for two salient reasons. First, before any unit cost analysis study can be undertaken, a plan or design must be drafted to establish the parameters of the study as well as to set specific procedures and methods. Secondly, the unit costs of one school or system are frequently compared with another. All too often there is no valid basis for making comparisons or drawing inferences because of lack of uniformity in each analysis. That is to say, cost analysis procedures must be uniform in all aspects before useful and meaningful interpretations, comparisons, and inferences can be made.

Uniformity is required in prorating procedures, data calculation, definitions, terminology, classifications, selection of appropriate unit to express cost, as well as a synchronized accounting system. For example, Burke writes that uniformity is required in ". . . definitions, terminology and classification." (3, p.121) Gauerke and Childress state, "It is extremely difficult if not impossible to have meaningful unit cost analysis without

designing an accounting system with it in mind." (9, p.205)

Knezevich and Fowlkes assert, "Uniformity in prorating procedures is necessary if there is to be any significance attached to unit cost figures for school systems from within or without the state."

(14, p.162) In regard to a uniform accounting system, Knezevich and Fowlkes claim, ". . . there can be no meaningful and comparable data on educational costs among school systems . . . unless there is a uniformity in accounting terminology and procedures." (14, p.153)

Thus, this chapter presents the general procedural design or model for this unit cost analysis as well as suggesting uniform standards necessary for unit cost accounting in other Alberta schools.

II. STAGES IN UNIT COST ACCOUNTING MODEL

A valid model or design for meaningful and significant unit cost accounting can encompass three very distinct stages or phases; the three phases of this cost study were:

I. Anticipatory Preparation

- a. development of uniform terminology
- b. establishment of an adequate accounting system
 - based upon a uniform performance classification
 - of expenditures
- c. determination of the accounting bases: cash or accrual

II. Unit Costing (Procedural Methodology)

- a. determination of the period of time for which the

per-pupil expenditure figure is to be computed
(a year, a week, a day, an hour)

- b. determination of the appropriate pupil unit to be used:
average daily membership, average daily attendance,
or pupil enrolment
- c. determination of the areas to be included in a per-unit expenditure figure (subjects, programs, and grade levels or divisions, and adult education)
- d. determination of the proration basis, standard or statistic to be used in allocation of expenditures to schools and areas
- e. determination or estimation of the actual or accrued costs
- f. estimate chosen per pupil costs of specified areas

III. Findings and Analysis

- a. extrapolation of the major findings
- b. analysis of findings and cost data to make comparisons, predict trends, and draw inferences

III. PHASE I: ANTICIPATORY PREPARATION

Development of Uniform Terminology

It was suggested in the introduction to Chapter II that unit cost analysis, in order to be meaningful and significant, must be based on a uniform nomenclature.

Costs and Expenditures. Costs and expenditures are frequently used synonymously in educational literature. Johns and Morphet suggest the term "cost" is all inclusive while "expenditure" may be classified as an exclusive term. (12, p.468) However, for the purpose of this study "costs" and "expenditures" will be used interchangeably to mean that amount of money or money's worth incurred, whether paid or unpaid, (accrual basis), for any item of property or service.

Cost Analysis, Unit Cost Analysis, and Cost Accounting. Cost analysis, unit cost analysis, and cost accounting are also repeatedly used interchangeably. Cost accounting and unit cost analysis in this study, shall be regarded as separate entities. Cost accounting will refer to;

That method of accounting which provides for the assembling and recording of all the elements of cost incurred to accomplish a purpose, to carry on an activity or operation, or to complete a unit of work or a specific job. (38, p.220)

On the other hand, unit cost analysis or unit cost accounting attempts to measure how much was accomplished at a given price. (13, p.153) Unit cost analysis or unit cost accounting, in this study, will refer to the detailed determination of designated educational expenditures for specific functions, activities, services or performances, the conversion of these expenditures into unit costs on a pupil enrolment basis, and the examination and analysis of the resultant per pupil unit costs.

Basically, the difference is one of activity; cost accounting is a bookkeeping or accounting system which specifies a particular procedure for entering accrued costs while cost analysis is a process which utilizes the accrued costs entered into the cost accounting system by determining per pupil costs and analyzing these.

Salary. The total amount regularly paid or stipulated to be paid to an employed individual, before deductions, for personal services rendered while on the payroll of the school district. In the calculation of salaries for this study, monies paid on behalf of the individual by the employing school board for superannuation (retirement and pensions), social security, workmen's compensation, health plan, unemployment insurance, fidelity bond or any similar payment related to salary were included.

Expenses. Expenses are expenditures incurred, other than salaries, by employees for items like supplies, travel expenses, membership fees, indemnities, accident policies and other insurance, advertising, repairs to supplies, and other related non-salary items.

Prorating. The allocation of parts of a single expenditure to two or more different accounts in proportion to the benefits which the expenditure provides for the purpose or program area for which the accounts were established. (38, p.229)

Accrued expenditures. Expenses which have been incurred, but as of a given date, have not been paid.

A more comprehensive listing of unit-cost analysis terminology will be elaborated upon in succeeding sections of Chapter II.

Development of an Adequate Accounting System Based on a Uniform Expenditure Classification

Cost accounting. The accounting system that best complements unit-cost analyses is "cost accounting." Fowlkes and Hansen, in discussing cost analysis feel that one of the major values of school cost accounting ". . . is that it furnishes a basis for cost analysis." (8, p.471) Cost accounting, as defined by Reason and White in the preceding section, is unparalleled as an accounting system for cost analysis because every expenditure item can be classified into the categories necessary for unit-costing. Every accrued expenditure, therefore, is entered directly into a specific ledger category according to the function, purpose, activity or performance of the expense. The ledger sheet, therefore, is a record of actual expenditures accrued by a school, for any given activity, function, program, grade or subject area.

Many times, however, an expenditure cannot readily be charged directly to a school or activity area. An adequate cost accounting system should make provisions for allocations to be made on some logical proration basis. However, proration procedures shall be discussed more fully in a following section.

Expenditure categories. The basis of a cost accounting

system is an unequivocal and meaningful classification of expenditures. Expenditure classification, according to Mikesell, is ". . . a systematic device for the description of the transactions classified." (16, p.121) The most formidable task in establishing an appropriate cost accounting system is in determining the specific expenditure categories as well as the educational activity areas for each category. A realistic and uniform classification of expenditures results in meaningful and significant data for unit cost comparisons.

At present many different approaches for categorizing expenditure accounts are available. The earliest educational expenditure classification was devised by Chase early in the twentieth century; "function, character, object and location " (13, p.96) This classification along with some modifications, still exists today. Mikesell, in his chapter, "Expenditure Accounting," describes six major types of expenditure classifications used by government: fund, organizational unit, function, activity, object class, and character. (16, chap. 3) Linn, in considering school expenditure categorization also describes six major classifications; fund, function, character, activity (performance), object and school (class, or other educational unit). (15, p.201)

Functional-character classification. Function and character have been widely accepted as the best methods of classifying educational expenditures. Classification by function, as defined by

Reason and White, refers ". . . to a group of services aimed at accomplishing a certain purpose or end; for example, 'administration,' 'instruction,' 'operation of plant,' " (38, p.219) while classification by character refers ". . . to the period of time--past, present or future--which the expenditure is presumed to benefit." (38, p.219) However, the most simple and clear definition was made by Chase when he wrote that function refers to the work helped along by the payment and character refers to the financial character of the payment as a fiscal transaction. (13, p.96)

Knezevich and Fowlkes suggest that ambiguity exists in the terms "function" and "character" and therefore recommend that the term "functional-character" be used to describe the classification of expenditures by character and function. (13, p.96) This study also recommends the use of the combined term "functional-character" rather than using each separately. "Character," thus is the broad grouping of expenditures while "function" is the kind of educational work done in the character grouping. Knezevich and Fowlkes write that, "Character classification can be conceived as a grouping of expenditures necessary to perform functions which are related in the manner suggested by the title of the classification." (13, p.96) Functional-character classification will therefore be used because it suggests that the index of the essential or intrinsic quality of character is best understood by examining the kind of educational work (function) performed by that expenditure.

Object classification. Object classification refers to the items services or articles purchased; the result is an almost inexhaustible list which includes items like textbooks, supplies, equipment, clerical work and other related activities, supplies or materials.

Location classification. Classification by location of unit refers to the allocation of expenditures to individual schools within the system as well as to program areas like matriculation or diploma, and levels of classification like secondary or elementary within each individual school. This method, claim Knezevich and Fowlkes, is justified only when the accounting system is to involve cost analysis.

Performance classification. The last two decades have witnessed a transference of emphasis to the performance, program or activity classification of expenditures. This scheme of classification was officially recommended by the first Hoover Commission in an attempt to overcome dissatisfaction with the ineptness of existing budgetary classification techniques. Presently, many progressive school systems are adopting some form of performance classification.

Akerly, a strong proponent of the performance schemata, feels that the performance classification should set up illusionary images of the services rendered, that is, it ". . . paints pictures in words that justify the expenditures." (15, p.169) Osview and Castetter define program classification as:

. . .based on functions activities and projects . . . which would focus attention upon the general character and rela-

tive importance of the work to be done, or upon the service to be rendered, rather than the things to be acquired, such as personal services, supplies, and so on. (22, p.13)

Benson, while recognizing the potentialities of performance budgets and classifications, feels however, the application to education is extremely difficult because of the problems in classifying activities as well as the ". . . difficulty of measuring work units in quantitative terms." (2, p.485) Burkhead feels performance classification cannot present the comparative evaluation of functions and activities:

What it comes to, then, is that performance classification based on end products can often create an illusion--the illusion that program content and accomplishment can be measured by the discrete things done by a government. This is by no means the case. Regardless of whether or not the end product in a performance classification is meaningful in terms of program content and accomplishment, it cannot measure performance in any value sense. (2, p. 485)

Nevertheless, the performance classification is recognized as an enlightened classification technique and thus the classification of expenditures in this study are performance-based.

Performance-based unit cost analysis expenditure classification.

Unfortunately, Thorhild County did not utilize a performance-based cost accounting system. Therefore, it was necessary to design a modified performance classification for tabulating meaningful cost data. On the basis of expenditure classification literature reviewed above, this study used the broad concept of performance expenditure classification as interpreted by Benson and Burkhead. Benson revealed that performance classifications make use of all

systems of expenditure classification (function, character, object and location); as a matter of fact, a complete performance classification ". . . might well rely on all of them." (2, p.484) Burkhead designed a performance classification model which was based upon the interrelatedness of functional-character, object, location and program classifications. (2, p.485) Therefore, the performance-based classification of educational expenditures as used in this study, illustrated in Figure 3, involved the amalgamation of the concepts of functional-character, object, location of unit, and performance classifications. This approach is further supported by Preston Cutler, when he suggests that the program or performance approach is intended to bring more correspondence between expenditure categories and the most direct objectives of education. (25, p.253) The performance-based unit cost analysis expenditure classification scheme of this study was intended to bring expenditure classifications into close identity with school objectives.

Further justification for conceiving of this concept as a performance classification was given by P.J.Atherton in his study, Alberta Junior College Cost Studies: Number One, Mount Royal College, when he stated, "A crude measure of output was considered as the completion of a student year in a given program." (32, p.9) Atherton further stated that the assumption of a zero failure rate of this crude measure could be refined by ". . .incorporating some measure of cost for students who fail to complete a year." (32, p.9) Atherton's performance approach was based on a statement made by

Gauerke and Childress:

A program budget is one which lays out for public inspection both the anticipated functions and activities and the projected costs of an activity. Performance budget stresses the measurement of the cost and the specific detail of the benefits to be realized from the activities supported. The first term facilitates a program reviewed, legislative committees or boards, the second emphasizes the output and requires the complete revision of accounts and their classification. (9, p.396)

In light of the statements by Gauerke and Childress, Atherton, Cutler, Benson and Burkhead, the approach of this unit-cost analysis study certainly is performance-based for it classifies expenditures by functions and activities and measures them in terms of output. That is to say, the classification of expenditures selected and the analysis of these expenditures in terms of student output through grade levels and subjects is a performance approach. A glance at Figure 4, page 30, clearly reveals the performance approach to analyzing educational costs. In essence, this approach is similar to Hirsh's concept of the "Federal Education Program Budget." (10, p.194)

Figures 1, 2, 3, and 4 represent the performance-based unit cost analysis expenditure classification developed for this study. Figure 1 reveals the broadest classification of expenditure by functional-character classification as utilized in most unit cost studies. Knezevich and Fowlkes state that the expenditure series 100-800 and a qualified 1400 series "are included in determining current expenditures per pupil because of their direct relationship and essentiality to the educational program." (13, p.128) Series 900 (Food Services) and 1000 (Student-Body Activities) are excluded from

Series 100	ADMINISTRATION
200	INSTRUCTION
300	ATTENDANCE SERVICES
400	HEALTH SERVICES
500	PUPIL TRANSPORTATION SERVICE
600	PLANT OPERATION
700	PLANT MAINTENANCE
800	FIXED CHARGES
1400	OUTGOING TRANSFER ACCOUNTS

Figure 1. Functional-character classification of educational expenditures necessary for cost analysis. (Adopted from Reason and White, Chapter 3.)

- Series: 100 ADMINISTRATION
- a. Salaries
 - b. Expenses
- 200 INSTRUCTION
- a. Direct Salaries
 - (1) instruction
 - b. Indirect Salaries
 - (1) administration
 - (2) clerical
 - (3) guidance counselor
 - (4) substitutes, interns and pre-interns
 - c. Indirect-Direct Expenses
 - (1) textbooks
 - (2) library
 - (3) instructional supplies
 - (4) equipment
 - (i) science
 - (ii) physical education
 - (5) correspondence courses
 - (6) other
- 300 ATTENDANCE
- 400 HEALTH SERVICES
- 500 PUPIL TRANSPORTATION SERVICES
- 600 PLANT OPERATION
- a. Salaries
 - b. Utilities
 - c. Supplies
 - d. Central Office
 - e. Others
- 700 PLANT MAINTENANCE
- 800 FIXED CHARGES
- 1400 OUTGOING TRANSFER ACCOUNTS

Figure 2, Functional-character-object classification of education expenditure accounts necessary for unit-cost analysis. (Adapted from Reason and White, Chapter 3. NOTE: In succeeding Figures and Tables, the expenditure account series will be designated by the use of alpha-numeric notations as shown above.)

Division or Level I - grades 1 -- 3 inclusive

Division or Level II - grades 4 - 6 inclusive

Division or Level III - grades 7 - 9 inclusive

Division or Level IV - grades 10 - 12 inclusive

Figure 3. Classifications of expenditures by grade division or level. (NOTE: In succeeding pages, Division or Level I, II, III, and IV will refer to the grades mentioned above.)

Functional- Character Object Classification of Expenditures	Per Enroled Pupil Unit Costs Based on Location Classification and Student Output as Measured by the Student Output of School Year Completion						
	Location		Performance				
	School System	Each School	Grade Divisions in System	Grade Divisions in Schools	All Subjects	Program Routes & Subjects	
100							
a.	X	X	X	X		X	
b.	X	X	X	X		X	
200							
a.							
1.	X	X	X	X	X	X	
b.							
1.	X	X	X	X		X	
2.	X	X	X	X		X	
3.	X	X	X	X		X	
4.	X	X	X	X		X	
c.							
1.	X	X	X	X		X	
2.	X	X	X	X		X	
3.	X	X	X	X		X	
4.	X	X	X	X		X	
5.	X	X	X	X		X	
6.	X	X	X	X		X	
300	X	X	X	X		X	
400	X	X	X	X		X	
500	X	X	X	X		X	
600							
a.	X	X	X	X		X	
b.	X	X	X	X		X	
c.	X	X	X	X		X	
d.	X	X	X	X		X	
e.	X	X	X	X		X	
700	X	X	X	X		X	
800	X	X	X	X		X	
1400	X	X	X	X		X	

Figure 4. Synthesized performance-based unit cost analysis expenditure classification. (NOTE: X indicates a unit cost analysis is performed in that category.)

this study because there is great diversity in the financing methods of these services in various areas. Community Services (Series 1100) are excluded because these expenditures have no relationship to the education of regular school pupils. Series 1200 (Capital Outlay) and 1300 (Debt Service) are not included because they are not current operating expenditures, as previously defined.

Figure 2 shows the specific functional-character-object classification used in this study. This classification became the building block for classifying all educational expenditures in this thesis.

Figure 3 shows classification of expenditures by grade level. The most significant unit costing was done in this output classification.

Figure 4 reveals the synthesized performance-based unit cost analysis classification as developed and used in this thesis.

Figures 6, 7, 8, and 9 on pages 151-153 of Appendix A show the subjects offered in Thorhild County schools. Only "direct instructional" costs were allocated to subject activities. It is assumed that the teaching of subjects is the main activity of the school; the performance measured is the successful completion of the teaching act or activity. This classification, therefore, fully qualifies as a performance classification.

Determining the Bases of Accounting: Cash or Accrual

The two bases for accounting are cash and accrual. Expenditures under the accrual basis are recorded as incurred, when the

services have been rendered or the goods are received. Cash accounting means that expenditures and revenues are entered only when payment has been made or has been received. The Manual of Accounting for School Boards issued by the Dominion Bureau of Statistics recommended the adoption of the accrual entry system because the costs will then accurately reflect the actual cost of education for the given year. (34, p.10) However, many boards adopt the cash basis because it is simpler to operate.

This study recommends the use of the accrual accounting when engaging in cost accounting that entails unit cost analysis. Because Thorhild County did not use the accrual basis, this study utilized a modified cash-accrual system of extracting cost data. That is to say, irrespective of when the expenditures were entered, the costs are extracted only for the period of time involved in the cost study. This process is very time consuming, but is justified on the basis of the cost data reflecting an accurate account of actual costs during the specified period of time. In order to extract the accurate "modified cash-accrual" expenditure data, it was necessary to check the invoices that corresponded to the entered cost figures on the ledger sheets. Most often, invoices stipulated the period of time for which the costs were incurred.

Defining Functional-Character-Object Expenditure Classification Items¹

¹Unless otherwise stated, the definitions of account series will be adopted from Handbook II of Financial Accounting for Local

100 Administration. "Administration" consists of those activities which have as their purpose the general regulation, direction, and control of the affairs of the school district that are system-wide and not confined to one school, subject, or phase of school activity.

Knezevich and Fowlkes further define "administration" as

. . . all expenditures related to the functions of formulating and executing educational policies for the school system as a whole are grouped under this functional-character class of accounts. (13, p.98)

In general "administration" includes expenditures on salaries and expenses of the school board, superintendent, central office staff and other activities related to planning, organizing, co-ordinating, controlling and directing the human efforts and material resources necessary on a system-wide basis. It also includes salaries and expenses for administrative contracted services for system-wide administration. Administrative contracted services are those services rendered by personnel who are not on the school district's payroll.

200 Instruction. "Instruction" includes the series of accounts

and State School Systems by Reason and White. (38, chapter 4, pp. 36-102) The definitions, of course, have been modified to meet the requirements of school systems in Alberta, and specifically, the County of Thorhild, Number 7. For a more detailed account of definitions and items of inclusion and exclusion, refer to Reason and White (mentioned above) or to Knezevich and Fowlkes (13, chapter 7, pp.95-122).

which deal directly with, or aid in, the teaching of students or improving the quality of instruction. These activities include personnel such as the teacher, building principal and vice-principal, consultant or supervisor of instruction, guidance and psychological personnel, librarian, audio-visual personnel, department heads, substitute teachers, temporary teachers, part-time teachers, interns and pre-interns.

200 (a) Direct salaries. "Direct salaries" include full-time salaries as well as prorated portions of salaries for all teaching services rendered to pupils or students in the school system. This includes full-time, temporary and part-time teachers and the prorated teaching portion of administrators, consultants, librarians, counselors, department heads and audio-visual personnel. The general term "instructors" is given to these people.

200 (b) Indirect salaries. "Indirect salaries" include the full-time or prorated portions of personnel who are only indirectly concerned with teaching activities or the improvement of the quality of instruction. This includes personnel such as building administrators, counselors, interns, pre-interns, substitutes, supervisors, consultants, librarians, supervisors, department heads, and school clerical personnel.

200 (c) Direct-indirect expenses. This category includes all expenses incurred for teaching activities or the improvement of

instruction, either directly or indirectly. "Textbook" expenditures include those furnished free to all or some students, book binding and repairs, freight and cartage of textbooks and the net cost of textbook rental or buy-sell schemes. Net cost is determined by subtracting the money received from the pupils for buying or renting the books from the money charged against the school district for the purchase of these books.

"School library" expenditures include accrued expenses for regular or incidental purchases of school library books available for general use by the students, reference books for use in or out of the library, binding and repairing these books, freight and cartage on the books, periodicals, newspapers, library supplies such as index cards and pencils, audio-visual material--films, filmstrips, recordings, charts, maps, television and radio materials and the rent of these materials, and other related expenses. Books for a new library or materials to expand a library are excluded from this category but would be included in "capital outlay."

The perennial debate on the separation of "supplies" from "equipment" by definition or by authoritative listing, writes Linn, has never been resolved. (15, p.209) Most items can be readily classified, but items such as wastebaskets, staplers and time stamps may be classified as either, depending upon type, durability and cost. Many authorities use a life-expectancy and cost-factor as criteria for making distinctions. However, this study chooses the most practical criteria--that of type--as suggested by Linn. (15,

p.210) "School supplies," therefore, will refer to those expenditures for all supplies which are actually or constructively utilized in the teaching-learning process, including freight and cartage, specifically defined as all those items which cannot be labelled as science or Physical Education equipment. Science equipment refers to all those supplies and materials purchased for science activities while physical education equipment refers to all those supplies and materials purchased for physical education activities. All other types of "supplies" will be considered as belonging to the category "instructional supplies." Examples of "instructional supplies" are tests, paper, chalk, ink, pencils, stencils, staplers, crayons, paint, ink, paper clips, and other materials not purchased specifically for science or physical education. Some examples of science equipment are test tubes, chemicals, balances and animal samples, while some examples of physical education equipment are various balls, skipping ropes, bats, helmets, and gloves. Any individual item over \$500.00 will be considered as "capital outlay" rather than instructional equipment.

"Correspondence courses" expenditures are included when the school district reimburses the registration fee to the student upon successful completion of the course. These expenditures are charged only when a student must enrol in a correspondence course in order to complete his program.

"Other" expenditures are those instruction-related expenses

which cannot readily be allocated to another expense category. This includes items such as the printing of exams, travel expenses, assembly speakers, graduation, damage to films, ribbons for office typewriter, supplies for in-service training, supplies for school exhibits and others not consumed in the teaching-learning process.

300 Attendance Services. Expenditures incurred by those activities which are designed for the promotion and improvement of children's attendance at school, through the enforcement of compulsory attendance laws and other services. This category can be further sub-divided into object categories including salaries and expenses.

400 Health Services. "Health services" are those activities in the field of mental and physical health which are not directly instructional, consisting of dental, medical, psychiatric and nurse service, in the nature of treatment, inspection, etc. These may be either contracted services or services performed by employed personnel of the school district. Again, this category could be further classified into salaries and expenses.

500 Pupil Transportation Services. This category is concerned with the conveyance of pupils to and from school activities, either between home and school or on trips for curricular or co-curricular activities. This category includes salaries for supervisors, drivers, mechanics, clerks and others, contracted services,

replacement of vehicles, pupil transportation insurance, expenditures in lieu of transportation, maintenance and operation of transportation vehicles and buildings, rent for transportation and others.

600 Operation of Plant. "Plant operation" consists of those housekeeping activities concerned with keeping the physical plant open and ready for use. This includes activities such as heating, cleaning, disinfecting, lighting, power, communications, water, sewage, caring for grounds, moving furniture, operation of trucks, and other such housekeeping functions as are repeated somewhat regularly on a daily, weekly, monthly or seasonal basis. Repairs and replacement of equipment and facilities are excluded. These activities are for school plants, central office, warehouses, garages (excluding pupil-transportation garages), maintenance shops, teacherages, dormitories and other such buildings.

"Salaries" are for plant engineers, custodians, and other related personnel. "Utilities" include water, sewage, electricity, gas, telephone, telegraph, heat and others. Supplies include custodial supplies, and supplies for care of grounds. Charges to "central office" include salaries, utilities and supplies required in the operation of buildings in the central office (all buildings except individual school plants.) "Others" includes items such as operation of school vehicles, in-service for employees, express, cartage, freight and other difficult-to-record expenses.

700 Maintenance of Plant. This classification series

involves those activities concerned primarily with keeping the grounds, buildings, and equipment in their original condition of completeness or efficiency, either through repairs or by replacement of property (anything less than a total building or room). Salaries for carpenters, painters, electricians, groundskeepers, and other similar personnel engaged in plant maintenance are included under salaries. Expenses for replacement of instructional equipment includes desks, chairs, tables, bookcases, workbenches, typewriters, projectors, trucks, business machines, radios, etc. Other expenses involve replacement of non-instructional equipment for non-instructional functions and activities such as "administration," "attendance" and "health." Both types of replacement of equipment do not include built-in items. A fourth category labelled "other expenses" includes expenditures on materials and rented equipment for upkeep of grounds, repair of buildings, repair of equipment and others. Occasional, "contracted services" for upkeep of grounds, repair of buildings and repair of equipment is included.

800 Fixed Charges. "Fixed charges" are those expenditures of a generally recurrent nature which are not readily allocable to other expenditure accounts. Reason and White included district contributions to employee benefit schemes. (38, p.76) However, it is the assumption of this study that monies paid on behalf of employees by the employer is closely related to salary and therefore district-paid benefits were included under "salaries." Fixed

charges include items such as employee insurance, property insurance, liability insurance, and rent and tax on land and buildings.

1400 Outgoing Transfer Accounts. "Outgoing transfer accounts" include any expenditures made to other school districts or administrative units. For cost analysis, the only item included in "outgoing transfer accounts" was expenditures for services rendered to pupils attending school within the paying district. This includes items such as tuition and transportation.

Defining Location and Performance Classification and the Accompanying Activities

Location Classification. This classification refers only to the schools within a school district. Occasionally, only one, two or three of the schools within a district are chosen as samples. All four schools within Thorhild County were costed.

Performance Classification. The first categorization of performance is the classification by grade level or grade division. It is assumed that the educational expenditures in the various grade levels will vary significantly. Therefore, a categorization by grade level would be meaningful in a unit cost analysis. The following four grade levels were utilized, as earlier shown in Figure 4, page 30.

Level I - grades 1 - 3 inclusive

Level II - grades 4 - 6 inclusive

Level III - grades 7 - 9 inclusive

Level IV - grades 10 - 12 inclusive

The second categorization by performance includes all the subjects offered in the schools where the cost study is being done. This is an attempt to allocate costs to the minutest educational activities. However, only "direct instructional" costs are allocated to individual subjects taught. The remaining expenditure categories are costed to grade levels. This classification is located in Figure 1, on page 27.

IV. UNIT COSTING (Procedural Methodology)

The procedure of unit costing was greatly simplified and enhanced by first adopting the cost accounting system just described. Costing involves the procedures of determining the time period for expenditures, areas to be included, proration basis, calculation of actual or accrued costs in all expenditure series and the estimation of the chosen per pupil costs of the predetermined specified areas.

Determining the Period of Time for Per Pupil Expenditures

Per-pupil expenditures can be computed on an hourly, daily, weekly, monthly or yearly basis. Reason and White recommend the computation of per-pupil expenditures on an annual basis. (38, p.129) The period of time should always be indicated for the per-pupil expenditure figure. This study used the computation of per-pupil

expenditures on an annual basis.

The 1967-68 school year was chosen over the present 1968-69 school year. The reason for this selection being that a centralized Vocational-Academic High School opened during the 1968-69 term and the cost figures, therefore, would not represent accurate unit costs.

Determination of an Appropriate Pupil Unit

The most common and useful unit for determining expenditure costs is a per-pupil attendance unit. The three possible per-pupil measures are enrolment as of a specified date, average daily attendance and average daily enrolment (average daily membership). (34, p.67) Enrolment as of a specified date is the least satisfactory measure, for enrolment early in the school year would be too high and enrolment late in the school year would probably be too low. Average daily attendance (referred to as ADA herein), as defined by the Manual of Accounting for School Boards is the ". . . total number of days attendance by all pupils divided by the number of days that school was actually in session." (34, p.67) Days in session should include only those days on which pupils were under the guidance and direction of teachers. ADA, the measure most often used in Canada, is more useful than enrolment as of a specified date because it is a measure of the average number of pupils in attendance rather than the number at any particular time.

The best measure, however, according to the Manual of Accounting for Public Schools (34, p.67), Reason and White (38, p.127),

Johns and Morphet (12, p.469) and Casey (5, p.50) is average daily membership (ADM) or average daily enrolment (ADE) or Perfect Aggregate Attendance (PAA). ADM is an American term while ADE is a Canadian term. ADM, as defined by Reason and White, is ". . . the aggregate days membership of the school divided by the number of days school was actually in session." (38, p.217) As in ADA, days in session are those in which the students were under the direction and guidance of a teacher. ADM or ADE is the best per-pupil measure, as stated by Johns and Morphet, because it is more closely associated with need expenditures than ADA or enrolment, and it is more exacting, for if a student is absent from school he is still costing the system a sum of money. (12, p.469) Therefore, it is the recommendation of this study that ADM or ADE is the best per-pupil unit presently available for accurate cost analysis.

For the purpose of this study, however, enrolment as of a specified date was used because ADM or ADA records were not available. The enrolments were extracted from the School Registration Form: Form A 1967-68. This meant enrolment as of mid-September, 1967. A summary of the pupil enrolments used in this study by County, School and grade levels is located in Table XXVIII, page 155 of Appendix B.

Determination of Proration Basis for Each Expenditure Series

It is always necessary to determine the account to which an incurred expenditure will be charged. If the expenditure is for a

single purpose, then no problem exists in allocation. For example, the salary for a junior high teacher is charged to direct instructional salaries of junior high teachers. However, it is a more difficult task to allocate "utility" expenditures to the various grade levels or program areas. For example, what portion of a utility bill can realistically be allocated to Divisions I, II, III, or IV? Also, allocations to expenditure accounts are made difficult when an employed personnel performs more than one function. Some examples of educational personnel whose salaries must be prorated or shared among two or more expenditure accounts are supervising administrators, teacher-librarians, department heads, school councilors in a County, secretary-treasurers, and others.

An alternative to prorating exists by recording total expenditure under the activity accounts to which the major part of an expenditure applies. Consider, for example, a teacher-librarian; if this individual spends most of his time as a teacher, then his total salary would be charged to "direct instructional salaries" and none to "indirect instructional salaries." This alternative is simple but highly inaccurate. It does not reflect true or accurate costs concerning services, activities and benefits that are being obtained. Reason and White strongly recommend proration over "single allocation by major portion" for,

. . .it is highly probable that without proration the accounts of such districts would show no money being spent for services that are actually being provided and paid for, while showing excessive sums of money being spent on certain activities for the amount of services being performed. (38, p.131)

The Manual of Accounting for School Boards also recommends proration by stating;

Prorating of expenditures is the only way in which a reasonably accurate record can be kept of the cost of each educational function or service, and without this knowledge efficient administration is impossible. (34, p.63)

Prorating is necessary in this thesis for more than the above mentioned reasons. Many times, the expenditures for all the schools within the system are recorded in the ledger account as one aggregate sum. No reference whatsoever is made to the amount actually chargeable to any school. The only method of allocating portions of that expenditure to each school is on a proration basis. A case in point is "salaries" and "expenses" of "Series 100 Administration." The second major reason for prorating in a unit cost study is to allocate individual school expenditures to the various grade levels. A proration ratio, based on some assumption, must be used to allocate costs to these grade levels.

Methods of prorating. Many methods, standards or bases for prorating expenditures have been devised. The most common and most applicable to unit-cost accounting are: (1) time, (2) time-ADM or time-ADA, (3) time-floor area, (4) hour-consumption, (5) number of pupils, (6) mileage and/or (7) quantity consumed.²

²For a more detailed account of proration methods refer to Reason and White, Chapter 8 (38, pp.130-139); A Manual of Accounting for School Boards, Chapter 10 (34, pp.63-65); or Knezevich and Fowlkes, Chapter 9 (13, pp.162-166).

The "time" method of prorating is based on allocating the expenditure of a given activity in proportion to the time spent in each given activity. Consider, for example, a teacher who teaches grade six 60 percent of his employed time and works in the library for the remaining 40 percent. The "time" method of proration would allocate 60 percent of this teacher's salary to teaching Level II and 40 percent to library. This basis is applicable to many areas.

The time-ADM or time-ADA method consists of allocating a given expense to various activities based on the proportion of ADM or ADA engaged in these activities and time spent by these pupils in these activities. Suppose, for example, a principal receives \$400.00 for administering a day and evening-program school. The ADM for day students is two thousand and for adult evening students the ADM is five hundred. Further suppose, that the day students spend twenty five hours a week in school while the adult students spend five hours a week. Therefore, the adult students spend but only one-fifth as much time in school as the regular day students. The adjusted ADM for adult education is five hundred divided by five, or one hundred. The adjusted ADM would be two thousand (ADM for regular day students) plus one hundred (adjusted ADM for adult students), or two thousand one hundred. The part of the administrator's salary charged to regular day students would be the proration ratio of 2,000 ADM to 2,100 ADM of all students. The

computation would be:

$$\frac{2,000}{2,100} \times \$8,400.00 = \$8,000.00$$

That is to say, the amount allocable to regular day students for administrative activities would be \$8,000.00 while \$400.00 would be allocated to evening adult classes. If the activities are approximately equal in time, then the conversion of time to a weighted ADM would be unnecessary. The same procedure is followed for ADA.

The time-floor area method of prorating consists of allocating a part of an expenditure to a specified activity in proportion to the gross floor area used by the activity, and also the length of time the floor area is used. Suppose, for example, the "utilities" of a school housing grades seven through twelve was \$50,000.00. Suppose further, that the floor area used by Division III was twenty thousand square feet, and by Division IV thirty thousand square feet. The proportion of the \$50,000.00 allocable to junior high would be determined by the proration ratio of two thousand square feet to the total square footage of five thousand, or \$20,000.00. However, since each grade level spends an equal amount of time in school, there is no need to weight each grade level (floor area basis). The computation would be:

Utility Costs for Division III:

$$\frac{2,000}{5,000} \times \$50,000.00 = \$20,000.00$$

If, in the event that the junior high grades spent only ten hours a week in school while the high-school students spent twenty

hours, then it would be necessary to prorate further (time-floor basis). In this case the \$20,000.00 allocated to Division III would be multiplied by the ratio of ten hours to twenty hours, or \$10,000.00.

The computation would be:

Utility costs for Division III:

$$\frac{10}{20} \times \$20,000.00 = \$10,000.00$$

The "utility" costs allocable to Division III would be \$10,000.00 and to Division IV, \$40,000.00.

The hour-consumption method consists of allocating expenditures in proportion to the length of time used and the hourly rate at which the materials, services or utilities are used. This hour-consumption method is used in allocating expenditures for water, electricity and gas, except for heating.

The number-of-pupils basis of prorating consists of allocating expenditures in proportion to the actual number of pupils (not ADM, ADA or ADE). This method is often used when all other methods are inapplicable, especially in activities such as transportation.

The mileage method of proration involves the allocation of an expenditure to a given activity in proportion to the mileage travelled. It is frequently used for allocation of expenditures to special kinds of transportation services such as field trips or athletic contests.

The quantity-consumed basis for prorating involves the allocation of an expenditure to a given activity in proportion to the actual consumption of the commodity. If, for example, Division I

used 40 percent of paper supplies and Division II consumed 60 percent, then 40 percent of the cost of paper would be allocated to Division I.

Criteria for selecting proration methods. It is extremely important that the most appropriate proration method is chosen when allocating expenditures by proration. One of the most important considerations, write Reason and White, ". . . is that it have a direct relationship to the activity for which the expenditure is being prorated." (38, p.134) Time is the best method for allocating salaries, while obviously, floor-area is appropriate for prorating expenditures for janitorial "supplies." John Evans, in his article "Here's how to go about finding the Total Cost of Educational Programs" expresses the same idea by referring to it as the criteria of "equity and adequacy." (29, p.43)

The proration basis should reflect the actual cost of the various activities in a realistic and accurate manner. If the ratio does not achieve maximum accuracy, then it should be discarded in favor of a more accurate standard.

Another important consideration is practicality. The method, Reason and White state, ". . . must be as simple as conditions will allow, and it must be feasible to apply." (38, p.134) Therefore, all proration bases, standards or methods in this study were chosen with the assumption that they were equitable, adequate, realistic, accurate and practical.

At this juncture, it must be emphasized that proration should not be considered as a substitute for the recording of actual

expenditures for different activities when such is feasible.

Proration should be considered as an alternative to recording of actual figures only when it is impossible to obtain actual figures. It must be remembered that prorating estimates only the approximate cost; it does not necessarily reveal the exact costs. This study, therefore, used proration for allocating expenditures only when actual expenditures could not be determined.

Proration bases used in this study. The proration methods used in this study were chosen because they were equitable, adequate, accurate, realistic and practical. Table 1 shows the proration methods chosen for the allocation of expenditures to various schools, grade levels and subjects.

Proration calculations. John Evans, in developing the "Primary Use Plan" and "Progressive Primary Use Plan" for unit-cost accounting in institutions of higher learning, formulated a standard formula for prorating: (29, pp.43-45)

$$X = \frac{A}{C} (B) \quad \text{where:}$$

X - exact cost allocated to a school, grade level or subject for a specified activity or service.

A - quantity of unit used only in the school, grade level or course.

B - expense allocated to a school, grade level or subject for a given activity or service.

C - total quantity of unit used in the school district, school, grade level or subject for a given activity or

TABLE I

PRORATION METHODS UTILIZED IN ALLOCATING EXPENDITURES
TO SCHOOLS, GRADE LEVELS AND SUBJECTS

Expenditure Series	Proration Method		
	School	Grade Level	Subject
100 ADMINISTRATION			
a. Salaries	AE&T ^a	T	
b. Expenses	NP	NP	
200 INSTRUCTION			
a. Direct Salaries			
(1) inst.	AE ^b	AE	T
b. Indirect Salaries			
(1) admin.	AE	T	
(2) clerical	AE	T	
(3) guid. coun.	T	T	
(4) subs., int., & pre.	AE	NP	
c. Exp., Dir. & Indir.			
(1) textbooks	NP	QC	
(2) library	AE&NP	QC	
(3) inst. supplies	AE&QC	QC	
(4) equip.	AE&NP	QC	
(5) corres. courses	AE	AE	
(6) other	NP	NP	
400 HEALTH SERVICES	T&NP	T&NP	
500 PUPIL TRANSPORTATION SERVICES	AE	NP	
600 PLANT OPERATION			
a. Salaries	AE	T-F	
b. Utilities	AE	T-F	
c. Supplies	NR ^c	T-F	
d. Central Office	NR	NP	
e. Others	NP	T-F	
700 PLANT MAINTENANCE	NP	NP	

TABLE I (continued)

Expenditure Series		Proration Method	
		School	Grade Level Subject
800	FIXED CHARGES	AE&NP	NP
1400	OUTGOING TRANSFER ACCOUNTS	AE	NP

Legend:

T: time
 TA: time ADA or ADM
 TF: time-floor area
 HC: hour consumption

NP: number of pupils
 M: mileage
 QC: quantity consumed
 AE: actual expenditures

^aOften it is necessary to use more than one method.

^bActual expenditures, preferable to prorating, procured by consulting invoices.

^cNR: number of rooms (modified version of TF)

service.³

Consider, for example, a guidance counselor who spends 30 percent of his time in Division IV. His salary is \$10,000.00. The amount of money allocated to "guidance" in Division IV will be:

$$\frac{30}{100} \times \$10,000.00 = \$3,000.00$$

Thus the sum of money allocable to "guidance" in Division IV is \$3,000.00. All proration calculations in this study were made on the same basis.

Determination and Estimation of Actual Costs

The accrued costs for each expenditure account must be procured in this stage. This necessitates the use of the ledger sheets, payroll summary sheets and reference invoices. All the personnel engaged in educational activities had to be categorized into their appropriate expenditure classification.

Determination and Estimation of Chosen Per Pupil Costs

This stage involved all the required calculations for determining per-pupil costs for various activities. The proration calculations for allocating expenditures to the various schools, grade levels and subjects had to be made. A calculator was used, but it is now possible to program a good portion of the calculations on a computer.

³The definition of the symbols is a modified adaptation of Evans standard formula for prorating.

V. FINDINGS AND ANALYSIS

Extrapolating Major Findings

Once the per pupil costs are computed and the appropriate Tables designed, the significant findings have to be extrapolated from the data. Significance, as used in this study, is not based on a .01 or .001 correlation or relationship between the two variables under discussion. Rather, significance is based on an arbitrary and subjective scale.

Analysis

On the basis of the data contained in the tables, comparisons, predictions and inferences were made. However, before accurate and valid comparisons, predictions and inferences can be claimed, it is necessary to engage in unit cost accounting in various other similar districts.

CHAPTER III

DATA SOURCES, COLLECTION AND TREATMENT

I. INTRODUCTION

The second stage of this thesis was concerned with applying the research design model for cost analysis to the financial expenditures of Thorhild County for the 1967-1968 school term. This meant, therefore, that the expenditure data sources had to be located and then the appropriate data procured. The collected data then had to be processed so as per pupil costs could be determined.

II. DATA SOURCES AND COLLECTION

The necessary expenditure data were extracted from the financial accounting statements and records of the County of Thorhild. Procuring cost figures for the entire school system was relatively simple and was obtained by consulting the ledger account sheets. The determination of costs incurred by each individual school, however, was made difficult because the cost figures entered in the ledger accounts were aggregated and therefore did not reveal individual school expenditure costs. This necessitated, therefore, the utilization of reference invoices, payroll summary sheets, employee summary sheets, primary sources and the Superintendent's ledger of school accounts. It was also necessary to consult various school operational records such as the "summary of monthly returns,"

"school timetables" and "registration summary forms." These records were made available through the Superintendent's office.

Step One

The first step, nevertheless, was the employment of the ledger account sheets. As stated, the ledger accounts provided only aggregate cost figures. For example, the "utilities" expenditures for all four schools within the County were entered as one aggregate figure. This condition made it necessary to involve a second data collection phase: procurement of data from the invoices, payroll summary sheets and employee payroll sheets.

Step Two

Every expenditure entered into the ledger account contained a cross reference number which referred to the invoices from which the expenditure was aggregated. By using the invoices, much of the required expenditure data on a school basis was obtained. Extracting data from invoices by using the cross reference numbers from the ledger accounts was a long and exacting task. However, the resultant expenditure figure for each school was exact and accurate. The alternative of proration would not yield the accuracy. Reference to invoices was utilized mainly for securing "Plant Operation" cost data.

Step Three

All the employee salary data was extracted from the payroll

summary sheets and employee payroll sheets. This third step made it necessary, however, to secure a list of all employees involved, either directly or indirectly in educational activities. This information was supplied by the central office personnel. Each employee, then, was placed into one of the functional-classification expenditure accounts. The categorization of various employees was defined in Chapter II. A problem arose in extracting cost figures from the employee payroll sheets: the payroll sheets were organized on the basis of the calendar year while the required data was based on the school year which is from September through August, inclusive. This meant that the monthly salaries (including all benefits) from September 1967 to December 1967 were extracted and added to the monthly salaries from January 1968 to August 1968. The same problem was also encountered in the ledger accounts.

In order to secure cost data that accurately reflected educational costs for the 1967-1968 school year, the invoices were referred to for the first expenditure of the school year as well as the last expenditure in the 1967-1968 school year. For example, supplies of various kinds purchased in July or August of 1967 often were not entered into the ledger account until payment was made in September or October. The same was true for July and August of 1968; many times a purchase made in July or August of 1968 was not entered until September or October. This is a fault of the cash accounting system; an accrual account system overcomes this difficulty (Discussed in Chapter II). Therefore, to procure accurate

cost figures for the school year of 1967-68 these invoices were referred to.

Step Four

The cost figures for "instructional supplies," "library" and "equipment" were extracted from the ledger file account kept by the Superintendent of Schools in Thorhild County. This book-keeping by the Superintendent's office made it possible to obtain true cost figures for these items. However, this record was begun in January of 1968 and thus the figures for September to December were prorated on the basis determined by actual expenditures from January to August. This proration was based on the assumption that the same proportion of money was expended by the individual schools from January to August as from September to December.

Step Five

A fifth procedural step in the collection of data was made necessary when it was impossible to determine, from the financial records, the amount of an expenditure expended by each school. Proration was thus involved. The proration standards or ratios were determined by securing the necessary proration statistics from primary sources. For example, the "supplies" used in "plant operation" were not invoiced to school accounts. Therefore, the Foreman of Plant Operation and Maintenance, was requested to estimate the amount of supplies allocated to each

school. He indicated that "number of rooms" per school would be as accurate a basis as any for estimating "supplies" expenditures per school. Tables XXX-XXXIV, on pages 158-162 of Appendix C summarize the proration basis used for estimating per-school expenditures in various expenditure categories.

Step Six

The most formidable task in the collection of necessary data was compiling the "Faculty Workload Survey." Normally, the gathering of this data by the researcher can be avoided by requesting instructional staff to complete the "Faculty Workload Survey" form. However, this was impossible because this study, while based on the 1967-68 school year, was being conducted in the spring of 1969. Staff turnover meant that many forms would not be completed. Also, many members of the instructional staff had forgotten the details necessary to complete the form. These conditions, therefore, made it necessary to extract the necessary information from the Superintendent's file; specifically the "Form A Registration Card," "school timetables," "Summary of Monthly Returns" as well as the payroll summary sheets.

The information procured for the "Faculty Workload Survey" consisted of (1) name of teacher, (2) school taught in, (3) salary including benefits, (4) subjects taught, (5) release time, (6) time spent per course, (7) percent of time per course, and (8) pupil enrolment per course.

An additional problem arose in determining the amount of salary allocable to instruction and to non-teaching activities of administrators. A distinction had to be made between actual teaching time as opposed to actual administrative time. Administrators, in Thorhild County, are paid on the basis of the teachers' salary grid as well as an additional administrative allowance based on the number of teachers. It is false to assume that the administrative allowance is the actual cost allocable to administration. Therefore, the actual administrative cost and instructional cost had to be determined. The methods used in making these calculations are shown in Appendix D. This method is a modified adaptation from Percevault (43, pp.23-25).

To facilitate the gathering and recording of all cost data, a series of forms were designed. The forms assisted in placement of various costs into proper categories. They also allowed for an organized manner of recording and transposing total figures to calculation sheets. These forms, along with necessary calculation formulas, are shown in Appendix D.

III. TREATMENT OF DATA

Total educational expenditures incurred by each of the four schools in the County of Thorhild as well as a classification of aggregate expenditure for the Thorhild County school system were derived by the steps outlined above. It was necessary, however, to determine various per pupil costs by grade level, subject, and

program in each of the four schools. In order to determine this final form of data, three distinct manipulative steps were involved: (1) determination of classified costs by grade level, (2) determination of per-pupil instructional costs on a subject level in each of the four schools, and (3) estimation of per-pupil costs by program. The only per-pupil cost computed to a cost per subject was "direct instructional salaries."

Determining Per-Pupil Costs by Grade Level and Subject

Most allocation of costs by category to grade levels involved prorating. Statistics for formulating proration ratios were procured by interviewing or contacting personnel closely attached to the specific expenditure account. Utilization of personnel like the school board, building principals and secretaries was based on the assumption that these people could provide the statistics for prorating more accurately and realistically than anyone else or any other method.

Each category of expenditure required different proration bases and statistics as well as different proration ratios. Table 1 on page 51 of Chapter II summarizes the type of proration basis or method used for allocating different expenditure categories to the various grade levels. Often the prorating statistics and ratios of one expenditure category varied in each of the four schools while the proration bases remained constant. This is so because each school allocates the use of its personnel and activities differ-

ently. Since proration statistics and ratios differed among expenditure categories, each category was treated separately.

Once the proration ratios were established, the next step was to calculate total costs allocable to each grade level. This calculation involved multiplying the total cost appropriated to the school for the expenditure activity by the proration ratios. The result was total costs of an activity per grade level. The formula utilized to make each of the mentioned calculations was discussed earlier in Chapter II, page⁵⁰ :

$$X = \frac{A}{C} \times B$$

The cost per pupil by grade division of each expenditure activity was then determined by dividing the total apportionment of cost to that grade level for the activity by the enrolment of the specified grade level. This procedure was very basic; for example, if the total costs allocated to, say, "school administration" in Division III of Newbrook School was \$4,614.50 while the enrolment was ninety-six, then the cost per pupil for administration of grade 7-9 was \$48.07:

$$\text{UNIT COST} = \frac{\text{Total cost attributed in the expenditure category by grade division or subject}}{\text{enrolment in specified grade division or grade}}$$

$$\text{SAMPLE PER PUPIL UNIT COST} = \frac{\$4,614.50}{96} = \$48.07$$

Exactly the same procedure was followed in determining all the

final per pupil costs except where the proration basis used was "number of pupils."

100 Administration. "Administration salaries" were prorated on a time basis. Most administration personnel are involved in both educational and municipal offices. An interview with the school board revealed that at least 60 percent of their time was spent on educational matters. Therefore, 60 percent of the aggregate salaries of the councillors, the secretary treasurer and his assistants were prorated to education.

The board further estimated that they spend 25 percent of their time in the affairs of each of the four schools. Each school, therefore, was prorated 25 percent of the 60 percent of total salaries.

The board estimated the following distribution of time within each grade level of every school except Newbrook; the reason for excluding Newbrook was that only Grade X in Division IV was offered:

Division	I	25%	Newbrook	I	20%
	II	25%		II	45%
	III	25%		III	20%
	IV	<u>25%</u>		IV	<u>15%</u>
		100%			100%

Mr. Prodaniuk, Supervisor of Plant Operation and Maintenance, estimated the following distribution of his time spent per school:

Newbrook	-	20%
Radway	-	20%
Redwater	-	35%
Thorhild	-	25%

He further felt the distribution of his time among the grade levels

to be approximately the same as the time distribution estimated by the board.

Once the cost per grade level was determined for salaries, the per pupil cost was calculated by dividing the number of pupils within each grade level into the total salaries for that grade level.

"Administration expenses" were allocated on the basis of number of pupils; that is, the total school enrolment is divided into the cost of administrative expenses and a cost per pupil is determined. This decision was based on the assumption that the more pupils there were for any given grade division, the more would expenses be. Because the number of pupils was used as the proration basis, the cost allocated was the same for each grade division; that is, when prorating to grade level by number of pupils and then dividing by the enrolment to get the per pupil cost, the sequence of calculations can be eliminated simply by dividing total apportionment by total school enrolment. The resultant figure is an uniform cost per pupil per grade division. The same calculation procedure, was used whenever apportionment per grade level was determined by "number of pupils." Table XXX in Appendix C, page 158, shows the proration ratios used when "number of pupils" was used as the proration basis.

200 (a) Instructional direct salaries. "Direct instructional salaries" were the only expenditures estimated on a subject basis. It was assumed that the only expenditure which is truly a direct

function of educational activities on the subject level is instruction. It was further assumed that all other expenditures could be accurately, equitably, adequately, realistically and practically prorated to grade levels.

A form was prepared for the calculation of per pupil instructional costs (Appendix D). This form had as its basis, the information from the "Faculty Workload Survey." The necessary calculations on this form were (1) cost per course, (2) cost for release time, (3) total cost per course and finally (4) cost per pupil per course. The formulas and calculations used to determine the above information are shown on the same form.

Release time for each teacher is prorated on the basis of time spent per course. That is, if a teacher spent two hundred minutes teaching social studies 8, two hundred minutes teaching social studies 7, and four hundred minutes teaching mathematics 10, then the cost of release time would be prorated on a 25-25-50 percent ratio. The assumption made was that the more time or periods a teacher spends teaching a subject, the more time he must spend in preparing for that subject. A further assumption is that each teacher utilizes release time for teaching preparation.

200 (b) Indirect salaries. The basis for prorating "administrative salaries" to grade levels was "time." In order to obtain the necessary proration statistics, each school administrator was interviewed. At the interview each administrator was asked to

estimate, as accurately and realistically as possible, the amount of his administrative time that could be allocated to each grade level.

A form had been designed (Appendix D) whereby administrators and other personnel keep a log of their activities for two weeks. At the end of two weeks, the statistics on their log sheets were used to form proration ratios for time distribution to grade levels.

The proration ratios used to determine administrative costs per grade level, as estimated by the administrators, is located on Table XXXI, page 159 of Appendix C.

The total cost per grade level for each school was determined by totalling each administrator's salary. The cost per pupil was obtained by dividing the enrolment by grade level into the total salary appropriated for that grade level. The same procedure was used in determining all other per pupil costs.

Time was also the basis of prorating the "clerical" and "guidance counselor's" salaries. Each of the personnel was interviewed in order to obtain estimate statistics as to time spent per grade level. It was assumed that the time lag would not affect the proration bases. Following are the proration ratios used to estimate clerical costs:

<u>Division</u>	<u>% by School</u>			
	Newbrook	Radway	Redwater	Thorhild
I	10	10	5	5
II	10	20	10	10
III	60	30	20	20
IV	20	40	65	65

Mr. Severin, the Guidance Counselor, estimated the following percent allocations of time per grade division per school:

<u>Division</u>	<u>Proration Ratio (%)</u>
I	10
II	5
III	25
IV	60

The salaries of "substitutes, interns, and pre-interns" were prorated on the "number of pupils" per grade level basis because substitute teachers were hired for all grade levels while the internship and pre-internship program was based on spending an equal amount of time per grade per school. Prorations, therefore, were assumed to be most accurate, adequate, equitable, realistic and practical when based upon this established procedure. As indicated earlier, a proration based on the number of pupils is equivalent to dividing the total enrolment of the school into the total expenditure apportionment for that school; the result was a per pupil cost.

200 (c) Indirect instructional expenses. "Textbooks" were assumed to be best prorated on a modified "quantity consumed" method based upon the rental-fee structure as established by Thorhild County (illustrated below). It was assumed that this rental-fee structure was a true representation of the actual amounts consumed. Since the fee structure for each grade level was uniform throughout each County school, the per pupil costs by grade level would be the same for each school. Following is a description of the rental-fee structure for 1967-68 and the fee-based converted

proration ratios:

<u>Division</u>	<u>Fee Structure(\$)</u>	<u>Proration Ratio(%)</u>
I	4.50	8.6
II	9.00	17.1
III	18.00	34.3
IV	<u>21.00</u>	<u>40.0</u>
	\$ 52.50	100.0

Cost per grade level was calculated by multiplying the total cost of the textbook rental scheme by the proration ratio. Cost per pupil by grade level for every school was determined by dividing the cost per division by the total County enrolments per grade level.

"Library" costs were prorated on a "quantity consumed" basis as estimated by each school administrator. Each school allocated different sums of money by grades to be spent on "library" activities. The proration ratios for allocation of "library" costs to grade levels were extremely accurate and realistic for the administrators gave the estimate statistics on an actual expenditure basis. The usual procedure was used to determine per pupil costs. Table XXXII, on page 160 of Appendix C reveals the proration ratios used, as based on estimates supplied by the administrators. Redwater School and Newbrook School allocated their "library" costs on a per pupil basis.

"Supplies" were also prorated on a "quantity consumed" basis, the only true basis. Again, each school administrator was asked to estimate the amount of supplies consumed by each grade level. The administrators found this a rather difficult task for none of the administrators had ever kept records or attempted to make similar estimates previously. Usual procedures were used to determine per

pupil costs based on the number of pupils. Table XXXIII, on page 161 of Appendix C shows the proration ratios used to determine cost of "supplies" per grade level.

Costs of "equipment" were divided into two more sub-categories: science and physical education. The proration of costs to these two categories was based on a proration basis of three parts physical education equipment to four parts science equipment. This proration standard was assumed to accurately represent actual allocations. A further assumption was made, on the basis of interviews with primary sources, that allocation of science and physical education equipment costs to the various grade levels be made on the following proration ratios:

<u>Division</u>	<u>Proration Ratio(%)</u>	
	<u>Science</u>	<u>Physical Education</u>
I	5	10
II	5	10
III	15	35
IV	<u>75</u>	<u>45</u>
Total	100	100

The costs of "correspondence courses" were allocated to the grade level on the bases of actual expenditures. Since grades X-XII students were the only ones enrolled in correspondence courses, all costs attributed to a school were allocated to Division IV. Per pupil costs were calculated by dividing the enrolment of Division IV of each school into the allocated costs.

The only proration basis that would accurately allocate "other" costs, was number of pupils. Again, one calculation de-

terminated the cost per pupil in every grade division of each school--total costs attributed to "other" divided by total enrolment.

400 Health services. "Health services" in Thorhild County were contracted by Sturgeon Health Unit. The Health Unit requisitioned the required amount of money necessary to provide health services. Other allocations to schools were first-aid supplies. Mrs. Hollihn, Public Health Nurse for Thorhild County, indicated that a time analysis on health services by grade division was conducted by Dr. Howell and the Sturgeon Health Unit. In estimating time-consumption allocations of contracted salaries and expenses to Thorhild County, the following proration ratios were given:

<u>Division</u>	<u>Proration Ratio(%)</u>
I	26
II	31
III	26
IV	<u>17</u>
Total	100

Because Newbrook school offered only grade X in Division IV, it was necessary to make the following adjustment of health expenditure allocations to the four grade levels in Newbrook:

<u>Division</u>	<u>Proration Ratio(%)</u>
I	30
II	36
III	30
IV	<u>4</u>
Total	100

500 Pupil transportation services. The recommended method of prorating "transportation" expenditures is by number of pupils. Therefore, the total costs of transportation per school was divided

by the school enrolment to calculate the per pupil cost by grade level.

600 Operation of plant. "Salaries," "utilities," "supplies" and "others" were prorated to grade levels on a time-floor basis. The principal of each school was asked to provide time and floor area statistics that would indicate the amount of time any given grade level utilized a given facility or accommodation as well as the floor area, in square feet, of that accommodation. On the basis of these statistics, time-floor area proration ratios were formulated. The resultant proration ratios, used for "utilities," "salaries," "supplies" and "others" are shown in Table XXXIV, on page 162 of Appendix C. The regular method was used to calculate costs per pupil, based on the number of pupils.

Costs of operating the "central office" were allocated on the number of pupils basis, the only equitable method. The usual procedure of calculations was used.

700 Maintenance of plant. Expenditures for "plant maintenance" were allocated to grade levels on the assumption that the more students there are in any given grade level, the more replacement and repair work will they require. Therefore, the proration standards were based upon number of pupils. Again, regular calculations were performed to obtain the per pupil cost of "plant maintenance" by grade level.

800 Fixed charges. "Fixed charges" were allocated to the various grade Divisions on a number of pupils basis. As usual, the cost of "fixed charges" per school was divided by the school enrolment in order to calculate the per pupil cost.

1400 Outgoing transfer accounts. The total expenditure allocable for unit costing was thirty dollars. This represents a per pupil County cost of one cent. Since this thirty dollars was charged to Redwater School, it represented a Redwater per pupil cost of six cents. This is an insignificant amount, and therefore "outgoing transfer accounts" was not included in the calculation of per pupil costs.

CHAPTER IV

PER PUPIL COSTS

I. INTRODUCTION

This chapter reports findings relative to the specific sub-problems outlined in Chapter I, namely (1) the total educational costs in Thorhild County and the County costs per pupil, (2) the cost per pupil in each of the four schools, (3) the County cost per pupil in each grade division, (4) the cost per pupil in each school by grade division, (5) the per pupil instructional costs for each curriculum subject offered in each school and (6) the per pupil costs of various selected program areas in the various grade levels of each school. The per pupil costs reveal the costs attributable to expenditure Series 100-900 and 1400. Also all the costs are for the 1967-68 school year in the County of Thorhild.

II. PER PUPIL COUNTY COSTS

The total educational costs borne by Thorhild County for 1967-68 school term, as revealed by Table II, was \$941,733.49 which amounted to an average estimated per pupil cost of \$568.34. It was interesting to note that instruction costs accounted for 69.1 per cent of total expenditures while pupil-transportation services, the second highest expenditure, totalled only 13.6 percent of total

TABLE II

ESTIMATED AVERAGE PER PUPIL COSTS IN THORHILD COUNTY
BY AGGREGATE EXPENDITURE SERIES--1967-1968

Expenditure Series	Estimated Total Expenditures(\$)	% of Expenditure	Estimated Costs Per Pupil (\$)
100 Administration	48,839.78	5.1	29.47
200 Instruction ^a	649,950.25	69.1	392.24
300 Attendance Service ^b	--		--
400 Health Services	6,736.18	0.7	4.07
500 Pupil Transportation Services	128,229.06	13.6	77.39
600 Plant Operation	61,634.83	6.5	37.20
700 Plant Maintenance	33,585.30	3.6	20.27
800 Fixed Charges	12,758.09	1.4	7.70
1400 Outgoing Transfer Accounts ^c	--		--
Total	941,733.49	100	568.34

^aInstruction costs do not include cost of correspondence courses.

^bNo expenditures were charged against "Attendance Services".

^cNo expenditures are recorded for "Outgoing Transfer Accounts" because the per pupil County cost is less than twenty five cents and therefore considered insignificant.

expenditures. "Plant operation" and "maintenance" accounted for 11.1 percent of aggregate expenditures with plant operation accounting for 6.5 percent while maintenance required only 3.5 percent.

No expenditures were attributable to "attendance", thereby eliminating this expenditure series from further expenditure allocations. "Outgoing transfer accounts," Series 1400, was eliminated because the aggregate per pupil expenditure was less than twenty-five cents. This elimination was based on the assumption that an aggregate per pupil cost of less than twenty-five cent per entire Expenditure Series is an insignificant amount.

Table III shows the average estimated per pupil costs by specified expenditure classifications with each Expenditure Series. This Table is more significant than Table II in that per pupil costs are indicated on a more specified expenditure classification. For example, instructional costs are now divided into twelve specific categories. "Direct instructional" costs, that is, costs borne by teachers' salaries, amount to 57.9 percent of total expenditures while administration of local school amounted to 5.6 percent or \$31.62 per pupil. The highest per pupil expenditure allocated to "plant operation" was salaries which amounted to a per pupil cost of \$16.74 or 2.9 percent of total expenditures. "Utilities," including gas, coal, water, sewer, electricity and telephone, consumed 2.5 percent of total expenditures or \$13.90 per pupil.

TABLE III

AVERAGE ESTIMATED PER PUPIL COSTS IN THORHILD COUNTY
BY SPECIFIED EXPENDITURE CLASSIFICATION

Expenditure Series ^a	Estimated total Expenditures(\$)	% of Ex- penditure	Estimated Cost Per Pupil(\$) ^b
100 ADMINISTRATION			
a. Salaries	46,729.83	4.9	28.20
b. Expenses	2,109.95	0.2	1.27
200 INSTRUCTION			
a. Direct Salaries			
(1) inst.	545,480.25	57.9	329.20
b. Indirect Salaries			
(1) admin.	52,399.00	5.6	31.62
(2) clerical	6,057.00	0.6	3.66
(3) guid. coun.	10,956.57	1.2	6.61
(4) subs., int. & pre.	6,294.00	0.7	3.80
c. Exp., Dir. & Indir.			
(1) textbooks	5,109.04	0.5	3.08
(2) library	8,124.90	0.9	4.90
(3) inst. supplies	11,401.27	1.3	6.88
(4) equip.			
(i) science	2,080.08	0.2	1.25
(ii) P.E.	1,569.18	0.1	0.95
(5) corres. courses	435.00	0.05	1.21 ^c
(6) other	478.96	0.05	0.29
400 HEALTH SERVICES	6,736.18	0.7	4.07
500 PUPIL TRANS. SERVICES	128,299.06	13.6	77.39
600 PLANT OPERATION			
a. Salaries	27,727.56	2.9	16.74
b. Utilities	23,032.67	2.5	13.90
c. Supplies	3,960.23	0.4	2.39
d. Central Office	3,700.77	0.4	2.23
e. Others	3,213.60	0.3	1.94
700 PLANT MAINTENANCE	33,585.30	3.6	20.27
800 FIXED CHARGES	12,758.09	1.4	7.70
Total	941,733.40 ^d	100.0	568.34 ^d

^aRefer to Figure 2, page 28, for complete explanation of each.

expenditure series.

^bEstimated cost per pupil based on an enrolment of 1,657 pupils.

^cCorrespondence course cost allocable only to high school students (grades 10-12).

^dCost is exclusive of correspondence course expenditures.

III. PER PUPIL COSTS BY SCHOOL

The average estimated per pupil costs in each of the four schools of Thorhild County are revealed in Table IV. Per pupil costs were the greatest in Radway school: \$669.37 per pupil. This is significant in that Radway School also had the lowest enrolment. The school with the second lowest enrolment, Newbrook School, correspondingly had the second highest per pupil costs: \$603.58 per pupil. However, such is not true for Redwater and Thorhild for while Thorhild School had the greatest enrolment, Redwater School operated on a lowest per pupil cost. Aggregate per pupil costs in Redwater were \$529.81 while Thorhild costs were \$551.08 per pupil. It is hypothesized that the reversal of order with Redwater and Thorhild regarding per pupil costs and enrolment was due to "transportation" costs; i.e., Redwater School draws a far greater school population from the Town of Redwater than Thorhild School does from the Town of Thorhild. Therefore per pupil transportation costs in Thorhild exceed those in Redwater. The per pupil costs in Redwater and Thorhild, exclusive of "transportation," is \$482.16 and \$460.51 respectively.

"Administration" (Series 100) per pupil costs in the two smallest schools, Radway and Newbrook, were approximately double that of the two larger schools, Redwater and Thorhild. Newbrook Administration per pupil costs were \$45.43 or 7.5 percent of their total per pupil cost while Thorhild costs were only \$19.03 per pupil or

TABLE IV

AVERAGE ESTIMATED PER PUPIL COSTS IN EACH OF THE FOUR SCHOOLS
IN THORHILD COUNTY

Expenditure Series ^a	Cost Per Pupil Per School							
	Newbrook		Radway		Redwater		Thorhild	
	\$	%	\$	%	\$	%	\$	%
100 ADMINISTRATION								
a. Salaries	45.43	7.5	46.35	6.9	22.42	4.2	19.03	3.5
b. Expenses	1.27	0.2	1.27	0.2	1.27	0.2	1.27	0.2
200 INSTRUCTION								
a. Direct Salaries								
(1) inst.	311.69	51.6	373.00	55.7	327.33	61.7	320.46	58.1
b. Indirect Salaries								
(1) admin.	39.77	6.6	39.07	5.8	32.21	6.1	24.78	4.5
(2) clerical	3.84	0.6	3.89	0.6	3.77	0.7	3.10	0.6
(3) guid. coun.	10.91	1.8	11.13	1.7	5.02	0.9	4.46	0.8
(4) subs., int. & pre.	4.70	0.8	5.83	0.9	3.28	0.6	3.08	0.6
c. Exp., Dir. & Indir.								
(1) textbooks	3.08	0.5	3.08	0.5	3.08	0.6	3.08	0.6
(2) library	5.62	0.9	5.65	0.8	4.34	0.8	4.81	0.9
(3) inst. supplies	6.83	1.1	6.48	1.0	7.41	1.4	6.58	1.2
(4) equip.								
(i) science	1.26	0.2	1.26	0.2	1.26	0.2	1.26	0.2
(ii) P.E.	0.95	0.1	0.95	0.1	0.95	0.2	0.95	0.2
(5) corres. courses	2.00	0.3	4.41	0.7	0.92	0.2	0.25	0.1
(6) other	0.29	0.1	0.29	0.1	0.29	0.1	0.29	0.1
400 HEALTH SERVICES	4.13	0.7	4.01	0.6	4.04	0.8	4.09	0.7
500 PUPIL TRANS. SERVICES	100.63	16.7	86.78	13.0	47.65	9.0	90.57	16.4

TABLE IV (continued)

Expenditure Series ^a	Cost Per Pupil Per School							
	Newbrook		Radway		Redwater		Thorhild	
	\$.	%	\$	%	\$	%	\$	%
600 PLANT OPERATION								
a. Salaries	18.27	3.0	19.43	2.9	13.75	2.6	17.68	3.2
b. Utilities	9.45	1.6	20.94	3.1	15.89	3.0	11.14	2.0
c. Supplies	2.78	0.5	3.01	0.4	2.47	0.5	1.91	0.3
d. Central Office	2.23	0.4	2.23	0.3	2.23	0.4	2.23	0.4
e. Others	2.25	0.4	2.44	0.4	2.01	0.4	1.55	0.3
700 PLANT MAINTENANCE	20.27	3.4	20.27	3.0	20.27	3.9	20.27	3.6
800 FIXED CHARGES	5.93	1.0	7.60	1.1	7.95	1.5	8.24	1.5
Total ^b	603.58	100.0	669.37	100.0	529.81	100.0	551.08	100.0

^aRefer to Figure 2, page , , for complete explanation of each expenditure series.

^bTotal costs are exclusive of per pupil costs of correspondence courses for they are allotable only to high school pupils.

only 3.5 percent of their total per pupil costs.

There was very little difference in direct instructional per pupil costs: Newbrook, \$311.69; Radway, \$373.00; Redwater, \$327.33 and Thorhild, \$320.46. The greatest difference, again, was observed between the largest and smallest schools, the difference being \$52.54. However, "direct instructional" costs take on a different perspective when they are considered in terms of percent of total school per pupil expenditure. Newbrook per pupil costs are 51.6 percent while Redwater's are 61.7 percent; the observed difference being 10.1 percent. No pattern of "small school-large expense" can be observed, one of the most important reasons being that "direct instructional" costs are a function of teacher training and experience as well as classroom enrolment.

No significant discrepancies can be observed in per pupil costs by school in the following categories: "indirect instructional salaries, indirect non-salary" costs, "health services," "plant maintenance," "fixed charges," and all categories of "plant operation" except "utilities." The greatest difference in "utilities" expenditures is between the two smallest schools; Radway's cost being \$20.94 per pupil while Newbrook's costs were \$9.15. This indicates that the per pupil costs for "utilities" in Radway was 2.2 times more than Newbrook per pupil "utilities" costs.

IV. COUNTY COSTS PER PUPIL BY GRADE LEVEL

Table V shows the average estimated county per pupil costs

TABLE V

AVERAGE ESTIMATED PER PUPIL COSTS IN THORHILD COUNTY
BY GRADE DIVISION: 1967-1968

Expenditure Series ^a	Cost Per Pupil by Division							
	I		II		III		IV	
	\$	%	\$	%	\$	%	\$	%
100 ADMINISTRATION								
a. Salaries	8.69	2.0	14.08	2.9	28.85	5.2	65.21	8.3
b. Expenses	1.27	0.2	1.27	0.2	1.27	0.2	1.27	0.1
200 INSTRUCTION								
a. Direct Salaries								
(1) inst.	272.86	59.9	292.18	59.4	332.14	58.4	433.33	54.6
b. Indirect Salaries								
(1) admin.	12.24	2.6	17.39	3.6	30.83	5.5	70.55	8.8
(2) clerical	1.00	0.2	1.70	0.3	3.50	0.7	9.07	1.1
(3) guid. coun.	3.42	0.8	1.99	0.4	6.79	1.3	15.22	1.9
(4) subs., int. & pre.	4.70	1.2	4.70	1.0	4.70	0.8	4.70	0.6
c. Exp., Dir. & Indir.								
(1) textbooks	1.10	0.2	2.12	0.4	3.62	0.6	5.68	0.7
(2) library	3.44	0.8	3.47	0.7	5.24	0.9	7.72	1.0
(3) inst. supplies	6.42	1.5	6.83	1.5	5.89	1.0	8.78	1.2
(4) equip.								
(i) science	0.26	0.1	0.25	0.1	0.65	0.1	4.33	0.5
(ii) P.E.	0.39	0.1	0.38	0.1	1.13	0.2	1.96	0.2
(5) corres. courses	0.00	0.0	0.00	0.0	0.00	0.0	1.21	0.1
(6) other	0.29	0.1	0.29	0.1	0.29	0.1	0.29	0.1
400 HEALTH SERVICES	4.07	1.0	4.07	0.9	4.07	0.7	4.07	0.5
500 PUPIL TRANS. SERVICES	77.39	17.1	77.39	16.0	77.39	13.7	77.39	9.8

TABLE V (continued)

Expenditure Series ^a	Cost Per Pupil by Division							
	I		II		III		IV	
	\$	%	\$	%	\$	%	\$	%
600 PLANT OPERATION								
a. Salaries	13.62	2.6	14.95	3.0	14.96	2.7	24.63	3.2
b. Utilities	11.04	2.3	12.27	2.5	12.37	2.1	21.00	2.6
c. Supplies	1.95	0.5	2.15	0.4	2.15	0.3	3.49	0.4
d. Central Office	2.23	0.5	2.23	0.5	2.23	0.4	2.23	0.3
e. Others	1.58	0.4	1.74	0.3	1.74	0.3	2.83	0.4
700 PLANT MAINTENANCE	20.27	4.5	20.27	4.1	20.27	3.5	20.27	2.6
800 FIXED CHARGES	7.70	1.4	7.70	1.6	7.70	1.3	7.70	1.0
Totals	455.93	100.0	489.42	100.0	567.78	100.0	792.93	100.0

^aRefer to Figure 2, page , for complete explanation of each expenditure series.

by grade division or grade level. This table is extremely significant in that it reveals a great disparity of per pupil costs among the four grade levels. Take, for example, the difference between the per pupil cost of a Division I pupil and a Division IV pupil, which is \$337.00. That is, the per pupil cost of a Division IV pupil is 73.4 percent more than the per pupil cost of a Division I pupil. Division II and III per pupil costs increased over Division I by \$33.49 or 7.3 percent and \$111.85 or 24.5 percent, respectively. Increases over Division II per pupil costs by Division III and IV were \$78.36 or 16.1 percent and \$303.51 or 64 percent, respectively. Division IV per pupil costs increased over Division III costs by \$225.15 or 39.6 percent. The greatest increase between consecutive Divisions was between Division III and IV which amounted to an increase of 39.6 percent, while the greatest overall disparity was between Division I and Division IV--an increase of 73.4 percent.

Table V also reveals that total per pupil costs as well as per pupil costs by Expenditure Series and their sub-categories continually increase from Division I through to Division IV. The only exceptions are found in Divisions I and II: "equipment," 200 (c)4; "guidance counselor," 200 (b)3. The largest expenditure item within any grade Division was "direct instructional salaries," 200 (a)1. Percentage of total per pupil costs of "instructional salaries" was 59.9 percent, 59.4 percent, 58.4 percent and 54.6 percent, respectively, from Divisions I to IV. It is interesting to note, however, that the percentage of cost for "instructional salaries"

decreases as the grade Divisions increase.

Local school "Administration" costs increased immensely as the grade Divisions increased. Division II, III, and IV per pupil costs increased over Division I by \$7.15 (58.4 percent), \$18.59 (151.9 percent) and \$58.31 (476.3 percent), respectively. Increases over Division II per pupil costs by Divisions III and IV were \$13.44 or 77.2 percent and \$53.16 or 305.6 percent, respectively. Division IV costs exceeded Division III per pupil costs by \$39.72 or 128.8 percent. The disparity among per pupil costs for local school "administration" exists even when the percentage of expenditure is taken into account. The percentage cost of "administration" in Division IV increased by 238.5 percent over the percentage cost in Division I.

The same inequity among Divisions exists in central office "administration" 100(a) per pupil costs. The increases in per pupil costs by Divisions II, III and IV over Division I were \$5.39 or 62 percent, \$20.16 or 232 percent, and \$56.52 or 650.4 percent respectively. Division III and IV per pupil costs increased over Division II costs by \$14.77 or 105 percent and \$51.13 or 363.1 percent. The increase in the per pupil cost of Division IV over Division III was \$36.36 or 128.7 percent. The per pupil cost of "administration" for Division IV was 128.7 percent greater than Division I.

The only expenditure categories where per pupil costs did not increase from Division I to IV were those where per pupil costs

were the same for all schools.

V. PER PUPIL COSTS BY GRADE DIVISION PER SCHOOL

Table VI reveals the estimated per pupil costs by grade divisions per school in Thorhild County for the 1967-68 school year. The most striking feature of this Table is that, almost without exception, per pupil costs by grade division were much higher in the two smaller schools, Radway and Newbrook, than in the two larger schools, Redwater and Thorhild. Also, in most instances, the per pupil costs by grade division were the least in the school with the largest population, per grade Division.

The lower portion of Table VI shows the total per pupil cost by grade Division in each school. Once again, the disparities of total per pupil costs by grade division are revealed. In considering these figures, one must keep in mind the enrolments per grade division as shown on Table XXVIII, page 155 of Appendix B. In Division I, Redwater School had the largest enrolment, 143 pupils, and accordingly, the smallest total per pupil cost, \$394.57. Thorhild School, having the second largest population, 137 students, had the second lowest total per pupil cost in Division I, \$427.17. Newbrook School and Radway School both had a low enrolment of 60 pupils and their total per pupil costs were \$577.45 and \$546.24, respectively.

In Division II, Thorhild School had the highest enrolment, 146 pupils, and the lowest total per pupil cost of \$495.72. Redwater

TABLE VI

ESTIMATED PER PUPIL COSTS BY GRADE DIVISIONS PER SCHOOL
IN THORHILD COUNTY: 1967-1968

Expenditure Series ^a	Grade Divisions	Cost Per Pupil Per School (\$)			
		Newbrook	Radway	Redwater	Thorhild
100 ADMINISTRATION					
a. Salaries	I	28.51	9.50	4.28	4.26
	II	29.62	20.73	9.07	8.00
	III	53.45	39.05	19.13	18.84
	IV ^b	126.69	117.95	68.02	39.83
	I-IV	1.27	1.27	1.27	1.27
b. Expenses					
200 INSTRUCTION					
a. Direct Salaries					
(1) inst.	I	314.95	344.62	250.84	245.77
	II	233.25	346.67	291.13	303.70
	III	297.44	360.47	338.97	333.25
	IV	708.77	444.38	473.64	376.78
b. Indirect Salaries					
(1) admin.	I	33.28	12.97	9.51	5.56
	II	25.93	22.88	15.09	12.94
	III	48.07	28.84	22.73	29.46
	IV	76.41	94.28	97.69	45.48
(2) clerical	I	1.61	1.59	0.72	0.76
	II	1.25	3.48	1.53	1.42
	III	6.02	3.93	2.58	2.68
	IV	10.70	6.59	12.40	7.67
(3) guid. coun.	I	9.13	4.57	1.92	2.00
	II	5.34	2.49	1.01	0.94
	III	12.84	9.38	4.28	4.42
	IV	30.43	28.34	15.22	9.34

TABLE VI (continued)

Expenditure Series ^a	Grade Divisions	Cost Per Pupil Per School (\$)			
		Newbrook	Radway	Redwater	Thorhild
200 INSTRUCTION (cont'd)					
(4) subs., int. & pre.	I-IV	4.70	5.83	3.28	3.08
c. Exp., Dir. & Indir.					
(1) textbooks	I	1.10	1.10	1.10	1.10
	II	2.12	2.12	2.12	2.12
	III	3.62	3.62	3.62	3.62
	IV	5.68	5.68	5.68	5.68
(2) library	I	5.62	5.62	5.62	5.62
	II	6.95	7.58	5.71	2.40
	III	4.34	4.34	4.34	4.34
	IV	0.00	0.00	5.72	11.76
(3) inst. supplies	I	7.15	5.30	8.51	4.42
	II	7.80	7.23	7.51	5.54
	III	4.47	5.45	6.34	6.52
	IV	14.29	8.23	7.51	9.18
(4) equip.					
(i) science	I	0.26	0.26	0.24	0.28
	II	0.20	0.28	0.25	0.26
	III	0.49	0.63	0.64	0.75
	IV	13.09	3.98	4.77	3.29
(ii) P.E.	I	0.40	0.39	0.36	0.42
	II	0.31	0.42	0.38	0.40
	III	0.86	1.11	1.13	1.31
	IV	5.92	1.80	2.16	1.49

TABLE VI (continued)

Expenditure Series ^a	Grade Divisions	Cost Per Pupil Per School(\$)			
		Newbrook	Radway	Redwater	Thorhild
200 INSTRUCTION (cont'd)					
(5) corres. courses	I-III IV	0.00 2.00	0.00 4.41	0.00 0.92	0.00 0.25
(6) other	I-IV	0.29	0.29	0.29	0.29
400 HEALTH SERVICES	I-IV	4.13	4.01	4.04	4.09
500 PUPIL TRANS. SERVICES	I-IV	100.63	86.78	47.65	90.57
600 PLANT OPERATION					
a. Salaries	I II III IV	19.10 16.08 13.85 48.39	13.55 18.25 17.03 29.68	9.97 12.23 12.20 22.94	15.05 15.61 17.51 21.59
b. Utilities	I II III IV	9.88 8.32 7.17 25.04	14.59 19.66 18.34 31.97	11.52 14.13 14.09 26.17	9.48 9.83 11.03 13.60
c. Supplies	I II III IV	2.90 2.44 2.11 7.36	2.10 2.83 2.64 4.60	1.79 2.20 2.19 4.13	1.63 1.69 1.89 2.33
d. Central Office	I-IV	2.23	2.23	2.23	2.23

TABLE VI (continued)

Expenditure Series ^a	Grade Divisions	Cost Per Pupil Per School (\$)			
		Newbrook	Radway	Redwater	Thorhild
600 PLANT OPERATION (cont'd)					
e. Others	I	2.34	1.70	1.46	1.32
	II	1.98	2.29	1.79	1.37
	III	1.71	2.14	1.78	1.53
	IV	5.97	3.73	3.35	1.89
700 PLANT MAINTENANCE	I-IV	20.27	20.27	20.27	20.27
800 FIXED CHARGES	I-IV	7.70	7.70	7.70	7.70
Totals	I	577.45	546.24	394.57	427.17
	II	480.11	585.29	450.88	495.72
	III	597.66	625.35	520.75	566.65
	IV	1,221.96	914.00	837.05	679.66

^aRefer to Figure 2, page 28, for complete explanation of each expenditure series.

^bDivision IV in Newbrook School consists of only Grade 10.

School had the second highest enrolment of 135 pupils but Newbrook School, with an enrolment of 77 pupils had the second lowest per pupil cost. Radway School, having the lowest enrolment in Division II, 55, also had the highest per pupil cost, \$585.29.

Division III total per pupil costs once again indicate the trend of the lower the enrolment per division, the greater the unit cost. Radway School had the lowest enrolment, 73 pupils, and accordingly had the highest total per pupil cost, \$625.35. The respective enrolments of Newbrook School, Thorhild School and Redwater School were 96 pupils, 155 pupils and 160 pupils and the accompanying total per pupil costs were \$597.66, \$566.65 and \$520.75, respectively.

The same is also true of total per pupil costs in Division IV. Newbrook School had an extremely low enrolment of 18 pupils because this school offered only a grade X high school program. Consequently, the total per pupil cost of educating a grade X pupil in Newbrook School for the 1967-68 school term was \$1,221.96. Radway School, which also had a comparatively low enrolment in Division IV, had a high per pupil cost of \$914.00. Redwater School, with a reduced population of only 108 in Division IV, had a per pupil cost of \$837.05. The school with the highest enrolment, Thorhild, with 176 pupils, had a total per pupil cost of only \$679.66.

A close analysis of total per pupil costs by school reveals that an increase in enrolment does not result in a proportionate decrease in per pupil costs. For example, in Division IV, the enrolments in Radway, Redwater and Thorhild increased respectively

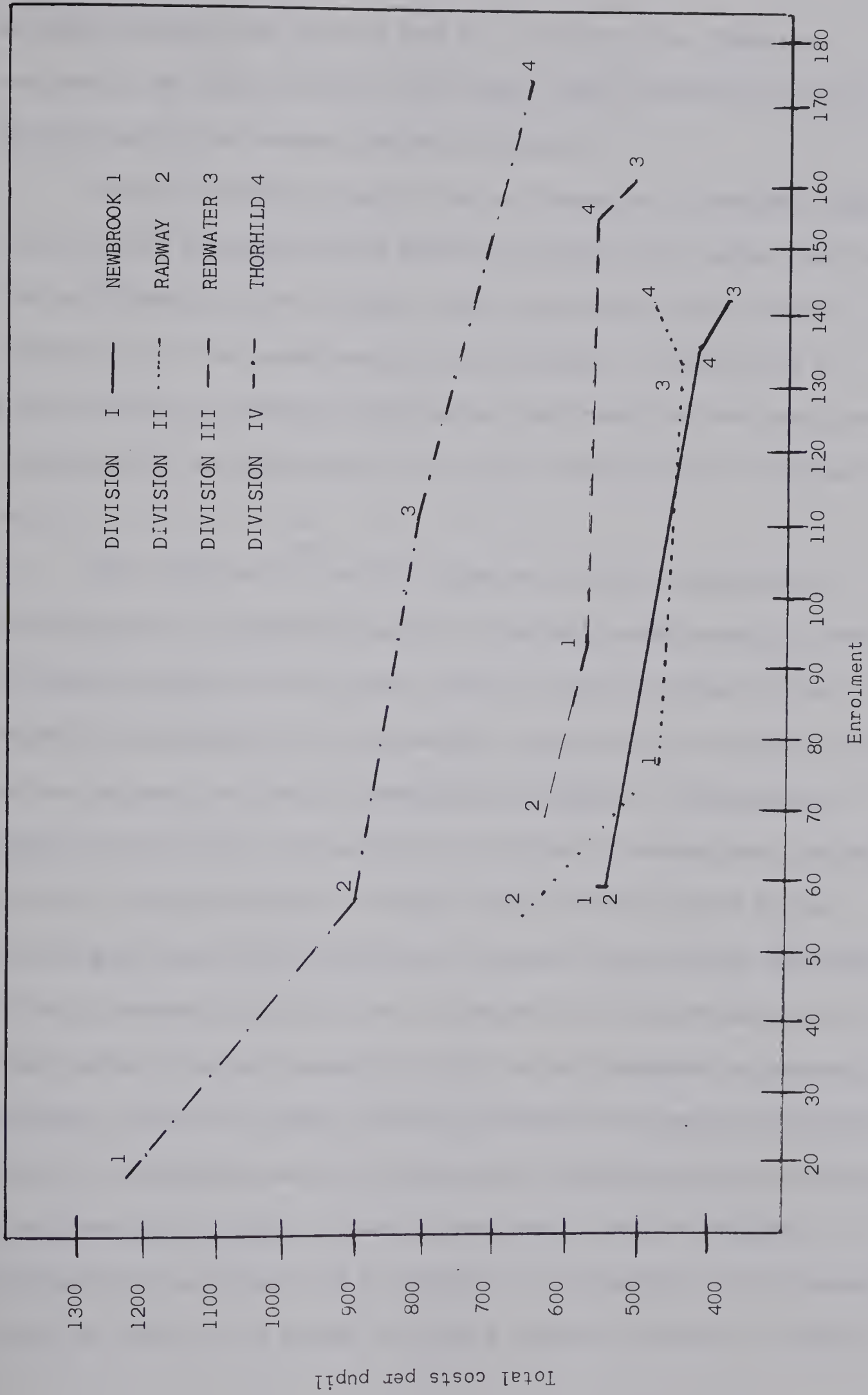


Figure 5. Relationship among the total per pupil costs of the four schools in Thorhild County by grade divisions and enrolments.

NOTE: Source of data: (1) Cost data from Table VI on page 87, and (2) Enrolment data from Table XXVIII on page 154.

by 222.2 percent, 500 percent and 877.7 percent over Newbrook enrolment, yet the decrease in per pupil costs, accordingly, was 25.2 percent, 31.4 percent and 44.4 percent.

Figure 5 further reveals that an increase in enrolment does not result in a proportionate decrease in per pupil costs; that is, the relationship is not linear. The line of best fit, however, indicates that the relationship is curvilinear. This Figure 5 also confirms the earlier established trend that the per pupil costs increase with the progression of a pupil from Division I through to IV.

The individual Expenditure Series and the accompanying sub-categories of expenditures all illustrate unequivocally, that the cost per pupil in all grade levels of the two larger schools, Thorhild and Redwater, is considerably less than the per pupil costs in the two smaller schools, Newbrook and Radway. This generalization is true with the exception of "direct instructional salaries" 200 (a)1, "transportation services" 500, and "utilities" 600(a). The per pupil costs attributable to "direct instructional salaries" did not increase directly with a decrease in enrolment because two other salient factors determine total costs allocable to teachers' salaries: years of formal training and years of teaching experience. That is, a teacher's salary is basically a function of the teacher's experience and training. Thus the per pupil costs of "direct instructional salaries" are a function of the amount of the teacher's salary as well as the number of pupils that the teacher has under

his/her jurisdiction.

The per pupil costs of "transportation services" do not follow the trend entirely because transportation expenditures are determined, to a great extent, by the population of students who do not require bussing and the density of the rural school population. That is, the school having the greatest proportion of its students living within a one and one-half mile radius from the school would accrue the least transportation expenses. Consequently, Redwater School has the lowest per pupil cost for "transportation services" because it has the highest urban population. Also, in Redwater the rural school population is relatively heavy. Newbrook and Thorhild Schools have the highest per pupil "transportation" costs, \$100.63 and \$90.57, respectively, because of the small urban school population and the sparse rural school population density.

The trend of low enrolment-high per pupil cost is not evident in "utilities" because the water and sewer installations in Newbrook School belong to the County. That is, the initial installation cost of the water and sewer system was very high, but the only subsequent costs incurred for Newbrook water and sewer are the repairs and upkeep, both of which are hidden. The low enrolment-high per pupil cost trend is maintained when only Redwater, Radway and Thorhild Schools are considered. Therefore, under normal conditions, "utilities" per pupil costs would be determined greatly by the number of pupils.

VI. DIRECT INSTRUCTIONAL PER PUPIL COSTS

BY GRADE IN EACH SCHOOL

The estimated per pupil costs of teaching each subject or course offered in the four schools of Thorhild County in the school year 1967-68 are found in Tables VII to X. As mentioned previously, the per pupil cost of teaching each course on the curriculum is a function of the pupil enrolment in the course, the teacher's salary as determined by experience and training, and the amount of time the course is offered.

The subject taught for the greatest length of time in Division I, as shown by Table VII is Reading. Correspondingly, the per pupil cost for Reading is higher than for any other subject in all four schools. Although the per pupil costs for teaching of reading is the largest per pupil cost, a significant discrepancy among the four schools is evident. In Reading 1, for example, the per pupil costs are respectively, \$87.18, \$87.54, \$170.47 and \$147.22 for Redwater, Thorhild, Newbrook and Radway Schools. The respective enrolments are 49, 47, 17 and 17 pupils. It is clear, then, that Redwater, with the highest enrolment, correspondingly has the lowest per pupil cost for teaching Reading 1. One may wonder, however, why it is that, even though the enrolments in Newbrook and Radway are identical, the per pupil costs vary by \$23.25. Time per course is not a factor for the difference in instruction time is only five minutes. The reason, however, can be found in the differing salaries of the instructors of

TABLE VII

ESTIMATED PER PUPIL COSTS OF TEACHING PRIMARY COURSES (DIVISION I) IN EACH OF THE FOUR
SCHOOLS IN THORHILD COUNTY: 1967-68

Courses	Newbrook						Radway						Redwater						Thorhild					
	Min.			Min.			Min.			Min.			Min.			Min.			Min.			Min.		
	Per	En-	Cost	Per	En-	Cost	Per	En-	Cost	Per	En-	Cost	Per	En-	Cost	Per	En-	Cost	Per	En-	Cost	Per	En-	Cost
	Week	rol	Pupil(\$)	Week	rol	Pupil(\$)	Week	rol	Pupil(\$)	Week	rol	Pupil(\$)	Week	rol	Pupil(\$)	Week	rol	Pupil(\$)	Week	rol	Pupil(\$)	Week	rol	Pupil(\$)
Art	1	30	17	8.12	45	17	10.44	80	49	6.71	47	4.35	60	47	4.35	60	47	4.35	60	47	4.35	60	47	4.35
	2	50	21	9.30	40	22	9.25	110	41	11.53	38	10.75	95	38	10.75	95	38	10.75	95	38	10.75	95	38	10.75
	3	55	22	9.12	50	21	11.35	85	53	5.39	52	5.99	85	52	5.99	85	52	5.99	85	52	5.99	85	52	5.99
Enter- prise	1	135	17	36.52	150	17	34.80	350	49	30.33	47	21.72	300	47	21.72	300	47	21.72	300	47	21.72	300	47	21.72
	2	135	21	25.35	150	22	34.27	285	41	30.68	38	36.92	325	38	36.92	325	38	36.92	325	38	36.92	325	38	36.92
	3	165	22	30.40	175	21	40.23	375	53	22.16	52	24.73	355	52	24.73	355	52	24.73	355	52	24.73	355	52	24.73
Health	1	30	17	8.12	30	17	6.96	70	49	6.24	47	4.35	60	47	4.35	60	47	4.35	60	47	4.35	60	47	4.35
	2	30	21	5.64	40	22	8.91	60	41	6.41	38	6.64	60	38	6.64	60	38	6.64	60	38	6.64	60	38	6.64
	3	30	22	5.52	30	21	6.88	55	53	3.53	52	4.78	70	52	4.78	70	52	4.78	70	52	4.78	70	52	4.78
Lang- uage	1	100	17	27.19	100	17	23.32	190	49	15.59	47	10.85	150	47	10.85	150	47	10.85	150	47	10.85	150	47	10.85
	2	125	21	23.38	125	22	28.44	245	41	26.19	38	27.64	245	38	27.64	245	38	27.64	245	38	27.64	245	38	27.64
	3	120	22	79.32	125	21	28.54	250	53	16.01	53	16.41	235	53	16.41	235	53	16.41	235	53	16.41	235	53	16.41
Arith- metic	1	275	17	74.28	225	17	52.50	475	49	40.47	47	32.60	450	47	32.60	450	47	32.60	450	47	32.60	450	47	32.60
	2	250	21	47.05	225	22	51.40	450	41	48.08	38	50.93	450	38	50.93	450	38	50.93	450	38	50.93	450	38	50.93
	3	300	22	55.27	250	21	57.41	500	53	32.01	52	34.78	500	52	34.78	500	52	34.78	500	52	34.78	500	52	34.78
Music	1	60	17	16.24	40	17	9.39	80	49	6.71	47	8.70	120	47	8.70	120	47	8.70	120	47	8.70	120	47	8.70
	2	50	21	9.30	40	22	9.25	95	41	10.16	38	16.25	120	38	16.25	120	38	16.25	120	38	16.25	120	38	16.25
	3	50	22	9.12	50	21	11.35	70	53	4.52	52	5.99	85	52	5.99	85	52	5.99	85	52	5.99	85	52	5.99

TABLE VII (continued)

Courses	Newbrook				Radway				Redwater				Thorhild			
	Min.		Min.		Min.		Min.		Min.		Min.		Min.		Min.	
	Per	En-rol	Cost	Per	En-rol	Cost	Per	En-rol	Cost	Per	En-rol	Cost	Per	En-rol	Cost	Per
	Week		Pupil(\$)	Week		Pupil(\$)	Week		Pupil(\$)	Week		Pupil(\$)	Week		Pupil(\$)	Week
Op. Exercises																
1	75	17	20.29	50	17	11.48	125	49	11.14	100	47	7.18	100	47	7.18	
2	50	21	9.30	50	22	11.31	125	41	12.90	100	38	11.30	100	38	11.30	
3	50	22	9.12	50	21	11.35	100	53	6.38	100	52	6.87	100	52	6.87	
Phys. Ed.																
1	30	17	8.12	50	17	11.48	125	49	12.73	130	47	9.34	130	47	9.34	
2	40	21	7.61	80	22	18.16	120	41	13.29	145	38	16.22	145	38	16.22	
3	60	22	11.05	75	21	17.19	110	53	7.08	145	52	10.15	145	52	10.15	
Print-ing																
1	60	17	16.24	75	17	17.40	150	49	12.57	150	47	10.85	150	47	10.85	
2	75	21	14.09	75	22	17.13	150	41	16.02	150	38	16.95	150	38	16.95	
3	75	22	13.82	75	21	17.19	150	53	9.72	150	52	10.41	150	52	10.41	
Read-ing																
1	630	17	170.47	635	17	147.22	1090	49	87.18	1210	47	87.54	1210	47	87.54	
2	520	21	97.77	525	22	119.95	1050	41	112.02	975	38	109.58	975	38	109.58	
3	430	22	79.32	470	21	107.61	1085	53	69.53	980	52	67.77	980	52	67.77	
Spell-ing																
1	--a	--	---	25	17	5.91	135	49	11.73	150	47	10.85	150	47	10.85	
2	100	21	18.88	75	22	17.13	175	41	18.32	150	38	16.95	150	38	16.95	
3	100	22	18.52	75	21	17.19	150	53	9.72	150	52	10.41	150	52	10.41	
Science																
1	75	17	20.29	75	17	17.40	120	49	10.06	120	47	8.70	120	47	8.70	
2	75	21	14.09	75	22	17.13	135	41	14.66	135	38	15.13	135	38	15.13	
3	65	22	11.88	75	21	17.19	135	53	8.73	145	52	10.05	145	52	10.05	

aNot recorded in timetable.

TABLE VIII

ESTIMATED PER PUPIL COSTS OF TEACHING UPPER ELEMENTARY COURSES (DIVISION II) IN EACH OF THE FOUR
SCHOOLS IN THORHILD COUNTY: 1967-68

Courses	Newbrook			Radway			Redwater			Thorhild		
	Min.			Min.			Min.			Min.		
	Per Week	En-rol	Cost Per Pupil(\$)	Per Week	En-rol	Cost Per Pupil (\$)	Per Week	En-rol	Cost Per Pupil(\$)	Per Pupil	En-rol	Cost Per Pupil(\$)
Art												
	4	55	21	7.75	45	22	9.14	110	49	10.14	80	8.37
	5	60	23	12.17	45	18	9.04	120	36	13.43	120	11.24
	6	60	33	7.95	60	15	18.51	130	50	11.56	70	7.54
Enter-prise												
	4	175	21	24.51	180	22	36.55	352	49	32.54	335	34.78
	5	200	22	40.47	200	18	40.10	250	36	27.74	390	36.42
	6	190	33	25.25	200	15	61.53	400	50	37.10	440	47.30
Health												
	4	30	21	4.19	30	22	6.09	60	49	5.60	130	13.51
	5	30	23	6.08	30	18	6.03	70	36	7.75	120	11.03
	6	30	33	3.98	30	15	9.25	60	50	5.12	70	7.49
Lang- uage												
	4	170	21	22.82	170	22	36.55	324	49	29.72	335	34.75
	5	175	23	35.60	170	18	40.10	400	36	44.32	350	32.67
	6	170	33	22.46	170	15	55.61	320	50	28.25	360	38.79
Math												
	4	280	21	39.18	255	22	51.77	585	49	53.62	550	58.05
	5	275	23	55.69	250	18	50.35	605	36	67.13	560	51.92
	6	280	33	37.17	275	15	84.66	540	50	50.12	560	60.42
Music												
	4	60	21	8.38	60	22	12.18	130	49	13.90	130	13.51
	5	75	23	15.21	75	18	15.07	120	36	13.43	120	11.24
	6	60	33	7.95	75	15	23.13	120	50	10.11	60	6.51

TABLE VIII (continued)

Courses	Newbrook						Radway						Redwater						Thorhild					
	Min.			Min.			Min.			Min.			Min.			Min.			Min.					
	Per Week	En-rol	Cost Per Pupil(\$)	Per Week	En-rol	Cost Per Pupil(\$)	Per Week	En-rol	Cost Per Pupil(\$)	Per Week	En-rol	Cost Per Pupil(\$)	Per Week	En-rol	Cost Per Pupil(\$)	Per Week	En-rol	Cost Per Pupil(\$)	Per Week	En-rol	Cost Per Pupil(\$)			
Op. Exercises	4	50	21	6.91	50	22	10.05	100	49	9.10	100	45	10.23	100	45	10.23	100	45	10.23	100	45	10.23		
	5	50	23	10.04	50	18	9.94	100	36	11.13	100	54	6.61	75	54	6.61	75	54	6.61	75	54	6.61		
	6	50	33	6.56	50	15	15.26	100	50	8.81	100	47	8.40	75	47	8.40	75	47	8.40	75	47	8.40		
Phys. Ed.	4	60	21	8.38	60	22	12.18	150	49	13.63	150	45	15.15	100	45	15.15	100	45	15.15	100	45	15.15		
	5	75	23	15.21	75	18	15.07	180	36	20.14	180	54	13.82	150	54	13.82	150	54	13.82	150	54	13.82		
	6	80	33	10.53	75	15	23.13	140	50	13.02	140	47	14.97	160 ^a	47	14.97	160 ^a	47	14.97	160 ^a	47	14.97		
Reading	4	385	21	53.84	410	22	83.14	772	49	71.16	772	45	75.71	710	45	75.71	710	45	75.71	710	45	75.71		
	5	325	23	66.04	345	18	69.34	700	36	77.57	700	54	67.13	715	54	67.13	715	54	67.13	715	54	67.13		
	6	360	33	47.71	345	15	106.41	675	50	56.70	675	47	78.67	725	47	78.67	725	47	78.67	725	47	78.67		
Spelling	4	75	21	10.48	45	22	15.23	150	49	13.86	150	45	18.59	180	45	18.59	180	45	18.59	180	45	18.59		
	5	75	23	15.21	80	18	15.97	115	36	11.90	115	54	11.63	120	54	11.63	120	54	11.63	120	54	11.63		
	6	75	33	9.93	75	15	23.13	165	50	14.80	165	47	16.64	175	47	16.64	175	47	16.64	175	47	16.64		
Science	4	85	21	11.94	90	22	18.27	182	49	16.80	182	45	20.18	195	45	20.18	195	45	20.18	195	45	20.18		
	5	90	23	18.26	105	18	21.10	280	36	31.10	280	54	16.42	180	54	16.42	180	54	16.42	180	54	16.42		
	6	90	33	11.93	90	15	27.76	240	50	20.09	240	47	20.51	190	47	20.51	190	47	20.51	190	47	20.51		
Writing	4	75	21	10.47	75	22	15.23	125	49	11.60	125	45	11.31	110	45	11.31	110	45	11.31	110	45	11.31		
	5	70	23	14.30	75	18	15.07	110	36	12.38	110	54	9.21	100	54	9.21	100	54	9.21	100	54	9.21		
	6	55	33	7.35	55	15	17.05	145	50	12.84	145	47	18.09	130	47	18.09	130	47	18.09	130	47	18.09		

^aExchange of PE 6 with teacher in Junior High for Guidance 8.

TABLE IX

ESTIMATED PER PUPIL COSTS OF TEACHING JUNIOR HIGH SCHOOL (DIVISION III) COURSES IN EACH OF THE
FOUR SCHOOLS IN THORHILD COUNTY: 1967-68

Courses	Newbrook			Radway			Redwater			Thorhild		
	Min.	En-rol	Cost Per Pupil(\$)	Min.	En-rol	Cost Per Pupil(\$)	Min.	En-rol	Cost Per Pupil(\$)	Min.	En-rol	Cost Per Pupil(\$)
	Per Week			Per Week			Per Week			Per Week		
Agriculture	9	N/O ^a	--	80	19	20.19	120	25	30.48	N/O	--	--
Art	7	N/O	--	N/O	--	--	120x2 ^b	50	16.20	80x2	55	13.09
	8	N/O	--	N/O	--	--	80	30	9.00	80x2	50	14.36
	9	N/O	--	N/O	--	--	N/O	--	--	80	25	27.54
Comm.												
Ec.	7	80	16.72	N/O	--	--	N/O	--	--	N/O	--	--
	8	80	13.96	N/O	--	--	80	31	16.38	80	14	30.16
	9	80	46.84	N/O	--	--	N/O	--	--	N/O	--	--
Devel.												
Rdg.	7	160	19.21	N/O	--	-- ^c	120x2	50	25.13	120x2	55	29.30
	8	160x2	40.62	N/O	--	-- ^c	120x2	61	32.38	120x2	45	23.98
	9	160	48.93	80	24	11.35	120x2	49	36.68	120x2	55	27.98
Drama	8	120	30.30	N/O	--	--	N/O	--	--	N/O	--	--
	9	N/O	--	N/O	--	--	120	24	23.58	N/O	--	--
Guidance	7	40	5.25	N/O	--	--	N/O	--	--	N/O	--	--
	8	80	12.32	N/O	--	--	N/O	--	--	80x2 ^f	45	18.02
	9	80	21.29	80	19	22.06	160x2	49	30.79	80x2 ^g	55	20.24

TABLE IX (continued)

Courses	Newbrook				Radway				Redwater				Thorhild			
	Min.		Min.		Min.		Min.		Min.		Min.		Min.		Min.	
	Per	En-rol	Cost	Per Pupil(\$)	Per	En-rol	Cost	Per Pupil(\$)	Per	En-rol	Cost	Per Pupil(\$)	Per	En-rol	Cost	Per Pupil(\$)
	Week				Week				Week				Week			
Health	7	40	27 ^d	19.55	80	19 ^d	28.26		80x2	50	10.48		80x2	55 ^d	12.52	
	8	40	38 ^e	6.16	80	35 ^e	15.34		80x2	61	8.59		80x2	45 ^e	15.81	
	9	40	22	10.66	80	19	26.68		80x2	49	11.02		80x2	55	13.96	
Home																
Ec.	7	N/O	--	--	160	10	54.44		N/O	--	--		N/O	--	--	
	8	N/O	--	--	160	9	60.49		N/O	--	--		N/O	--	--	
Ind.																
Arts	7	N/O	--	--	160	14	54.75		N/O	--	--		N/O	--	--	
	8	120	23	33.86	160	21	36.50		N/O	--	--		N/O	--	--	
	9	80	12	43.07	N/O	--	--		N/O	--	--		N/O	--	--	
Lang-																
uage	7	240	28	30.32	280	24	78.28		200x2	50	27.00		240x2	55	58.58	
	8	200	37	19.11	280	30	62.62		200x2	61	50.75		240x2	45	66.27	
	9	200	22	61.02	240	24	34.03		200x2	49	59.48		240x2	55	54.29	
Liter-																
ature	7	120	28	15.15	160	24	44.73		120x2	50	25.13		120x2	55	29.75	
	8	120	37	11.46	160	30	35.78		120x2	61	32.38		120x2	45	24.56	
	9	120	22	36.55	160	24	31.04		120x2	49	30.24		120x2	55	20.09	
Math																
	7	240	28	53.52	240	24	51.39		240x2	50	32.40		240x2	55	57.75	
	8	240x2	37	68.81	240	30	41.11		24-x2	61	46.24		240x2	45	56.29	
	9	240	22	47.51	240	24	64.92		240x2	49	60.50		240x2	55	46.05	
Music																
	7	80	28	18.46	160	54 ^h	10.93		80x2	50	16.75		N/O	--	--	
	8	N/O	--	--	N/O	--	--		80x2	61	31.73		N/O	--	--	
	9	N/O	--	--	N/O	--	--		N/O	--	--		80	30	13.89	

TABLE IX (continued)

Courses	Newbrook				Radway				Redwater				Thorhild			
	Min.		Min.		Min.		Min.		Min.		Min.		Min.		Min.	
	Per	En-rol	Cost	Per	Per	En-rol	Cost	Per	En-rol	Cost	Per	En-rol	En-rol	Cost	Per	En-rol
	Week		Pupil(\$)		Week		Pupil(\$)		Week		Pupil(\$)		Week		Pupil(\$)	
Oral																
French	7	N/O	--	--	N/O	--	--	--	N/O	--	--	--	120x2 ⁱ	35	35.71	35
	8	N/O	--	--	N/O	--	--	--	N/O	--	--	--	80 ⁱ	31	9.56	31
	9	N/O	--	--	N/O	--	--	--	120x2	49	31.58	120x2	120x2	55	22.72	55
Phys.																
Ed.	7	120	27 ^d	28.44	80	19 ^d	21.65	120x2	120x2	50	19.87	100x2	100x2	55	13.52	55
	8	120	38 ^e	18.51	80	35 ^e	10.75	120	120	30	16.57	80x2	80x2	45	15.63	45
	9	120	22	31.96	120	19	32.44	240x2	240x2	49	50.29	80x2	80x2	55	12.79	55
Science	7	200	28	31.12	240	24	67.10	200x2	200x2	50	41.37	240x2	240x2	55	32.47	55
	8	200	37	35.41	240	30	27.22	200x2	200x2	61	27.16	240x2	240x2	45	57.27	45
	9	240	22	70.81	200	19	55.12	200x2	200x2	49	54.02	240x2	240x2	55	46.84	55
Social																
Studies	7	240	28	53.60	240	24	67.10	200x2	200x2	50	26.60	240x2	240x2	55	20.09	55
	8	200	37	31.66	240	30	41.11	200x2	200x2	61	34.33	240x2	240x2	45	49.10	45
	9	200	22	53.25	200	19	55.12	200x2	200x2	49	50.41	240x2	240x2	55	65.45	55
Spell- ing	7	C ^j	--	--	C	--	--	--	120x2	50	26.49	C	C	--	--	--
	8	C	--	--	C	--	--	--	120x2	61	32.32	C	C	--	--	--
Typing	9	80	22	22.60	120	19	33.05	N/O	N/O	--	--	N/O	N/O	--	--	--

^aN/O signifies the course was "not offered." N/O shall be used in succeeding Tables to mean "not offered."

^b120x2 indicates the course was offered to two different groups of students for 120 minutes each.

TABLE IX (continued)

^cDevelopmental Reading 7 and 8 integrated into the language program.

^dOnly grade 7 and 8 girls.

^eOnly grade 7 and 8 boys.

^fExchange with both grade 6 teachers for P.E. 6.

^gBoys and girls instructed separately.

^hMusic 7 and 8 instructed as one class.

ⁱOral Ukrainian offered in lieu of Oral French.

^jC indicates that Spelling was integrated into language instruction.

TABLE X

ESTIMATED PER PUPIL COSTS OF TEACHING HIGH SCHOOL (DIVISION IV) COURSES IN EACH OF THE
FOUR SCHOOLS IN THORHILD COUNTY: 1967-68

Courses	Newbrook ^a						Radway						Redwater						Thorhild					
	Cred- its ^b	En- rol	Cost Pupil(\$)	Per Pupil(\$)	Cred- its ^b	En- rol	Cost Pupil(\$)	Per Pupil(\$)	Cred- its ^b	En- rol	Cost Pupil(\$)	Per Pupil(\$)	Cred- its ^b	En- rol	Cost Pupil(\$)	Per Pupil(\$)	Cred- its ^b	En- rol	Cost Pupil(\$)	Per Pupil(\$)	Cred- its ^b	En- rol	Cost Pupil(\$)	Per Pupil(\$)
Biology	20	N/O	-	--	5	13	56.73		5 ^c	20	76.42		5x2 ^d	46	32.43		5	18	76.38		5x2 ^d	46	32.43	
	30	N/O	-	--	5	6	145.83		5 ^e	9	169.83		5				5				5			
Bookkeeping	10	5	8	156.50	N/O	-	--		N/O	-	--		N/O	40	68.18		N/O	30	49.99		5x2	40	68.18	
	20	N/O	-	--	5	9	116.36		N/O	-	--		N/O	30	49.99		N/O	30	49.99		5	30	49.99	
Bus. Fund.	10	N/O	-	--	3	24	26.17		N/O	-	--		N/O	32	28.11		N/O	32	28.11		3	32	28.11	
Drama	10	N/O	-	--	N/O	-	--		N/O	27	27.92		4	-	--		4	-	--		N/O	-	--	
Economics	30	N/O	-	--	N/O	-	--		N/O	23	63.35		5	22	60.15		5	22	60.15		5	22	60.15	
English	10	5	18	74.58	5	23	29.59		5x2	36	52.38		5x2	55	58.51		5x2	36	95.52		5x2	55	58.51	
	20x	N/O	-	--	N/O	-	--		N/O	-	--		N/O	36	95.52		N/O	-	--		5x2	36	95.52	
	23	N/O	-	--	N/O	-	--		N/O	17	55.46		5	25	54.57		5	25	54.57		5	25	54.57	
	30	N/O	-	--	5 ^f	16	73.73		5 ^e	14	105.84		5	29	59.25		5	29	59.25		5	29	59.25	
	33	N/O	-	--	5 ^s	-	--		5 ^s	18	52.38		5	22	70.77		5	22	70.77		5	22	70.77	
Fabrics and Dress	10	N/O	-	--	4	14	38.88		N/O	-	--		N/O	-	--		N/O	-	--		N/O	-	--	
French	10	5 ^e	9	179.42	5	11	67.05		5x2	37	69.69		5x2	39	53.52		5x2	37	40.16		5x2	39	53.52	
	20	N/O	-	--	5	6	122.92		5	21	61.42		5	37	40.16		5	37	40.16		5	37	40.16	
	30	N/O	-	--	5	5	147.51		5 ^e	9	171.93		5 ^e	26	28.51		5 ^e	26	28.51		5	26	28.51	

TABLE X (continued)

Courses	Newbrook				Radway				Redwater				Thorhild			
	Cred-	En-	Cost Per		Cred-	En-	Cost Per		Cred-	En-	Cost Per		Cred-	En-	Cost Per	
	its	rol	Pupil(\$)		its	rol	Pupil(\$)		its	rol	Pupil(\$)		its	rol	Pupil(\$)	
Geography																
20	N/O	-	--		N/O	-	--		5	15	43.70		5	31	34.62	
Ind. Arts																
10	5	8	163.80		4	18	42.58		N/O	-	--		N/O	-	--	
Language																
20	N/O	-	--		5	15	45.37		5	23	63.35		N/O	-	--	
Law																
20	N/O	-	--		N/O	-	--		5	38	38.34		5x2	45	40.38	
Literature																
20	N/O	-	--		N/O	-	--		3	24	34.16		N/O	-	--	
21	N/O	-	--		5	11	116.18		3	24	34.16		5	36	36.76	
Mathematics																
10	5	9	96.83		5	16	79.87		5e	23	43.21		5x2	39	65.72	
11	5	8	156.50		5	5	209.46		5	23	28.48		5	21	71.42	
12	N/O	-	--		N/O	-	--		5	19	67.03		N/O	-	--	
20	N/O	-	--		5	7	182.58		5e	23	66.96		5x2	42	61.03	
21	N/O	-	--		N/O	-	--		N/O	-	--		5	17	51.73	
22	N/O	-	--		5	15	85.20		5	20	63.88		N/O	-	--	
(new)30	N/O	-	--		5e	6	254.66		5e	9	171.11		5	26	49.26	
Office Practice																
20	N/O	-	--		N/O	-	--		N/O	-	--		5	22	68.17	
P.E.																
10	3	18	29.06		2	22	17.43		3x2	36	34.23		3x2	55	23.03	
20	N/O	-	--		N/O	-	--		5	13	78.99		N/O	-	--	
Physics																
30	N/O	-	--		N/O	-	--		5e	9	171.93		59	15	85.38	
Reading																
10	3	18	23.56		N/O	-	--		120x2	36	32.09		3	28	26.62	

TABLE X (continued)

Courses	Newbrook				Radway				Redwater				Thorhild			
	Cred-its	En-rol	Cost Pupil(\$)	Per Pupil(\$)	Cred-its	En-rol	Cost Pupil(\$)	Per Pupil(\$)	Cred-its	En-rol	Cost Pupil(\$)	Per Pupil(\$)	Cred-its	En-rol	Cost Pupil(\$)	Per Pupil(\$)
Record Keeping																
10	N/O	-	--	--	N/O	-	--	--	120	25	30.48		N/O	-	--	
Science																
10	5	9	96.83	63.89	5	15			5	22	58.62		5x2	39	45.12	
11	5	9	96.83	191.68	5	5			5	19	67.03		5	19	61.36	
20	N/O	-	--	136.91	5	7			5	22	60.16		5x2	51	44.20	
22	N/O	-	--	--	N/O	-	--	--	5	22	37.66		N/O	-	--	
Chemistry																
30x	N/O	-	--	136.96	5	7			5e	11	144.40		5	26	52.88	
Social Studies																
10	5	18	65.08	44.68	5	23			5x2	36	70.56		5x2	55	50.16	
20	N/O	-	--	51.47	5	17			5	23	63.35		5	36	41.66	
30	N/O	-	--	54.69	5	16			5e	17	86.95		5	28	55.61	
33	N/O	-	--	--	5s	-	--	--	5	13	99.24		5	22	68.17	
Sociology																
20	N/O	-	--	--	N/O	-	--	--	5	22	29.80		N/O	-	--	
Typing																
10	5	10	125.21	28.54	3	22			3x2	36	38.50		3x2	56	32.15	
20	N/O	-	--	58.18	5	18			5	22	46.67		5x2	25	119.99	
30	N/O	-	--	--	5s	-	--	--	5s	-	--		5	13	115.37	
Ukrainian																
10	N/O	-	--	--	N/O	-	--	--	N/O	-	--		5	20	37.06	
20	N/O	-	--	--	N/O	-	--	--	N/O	-	--		5	14	53.95	
30	N/O	-	--	--	N/O	-	--	--	N/O	-	--		5	6	229.16	

^aNewbrook School did not offer any grade 11 or 12 subjects.

^bEach credit signifies a teaching time of 40 minutes per week, unless otherwise noted.

TABLE X (continued)

^cAn "e" beside a credit signifies that the course is taught for an extra 40 minutes per week. That is, "5e" indicates a class of 240 minutes per week instead of 200.

^d5x2 indicates a 5 credit course offered twice a week for a total of 400 minutes.

^eExperimental course.

^fS indicates a 30 and 33 course offered simultaneously in accordance with the 1967-68 Senior High School Handbook.

^gPhysics 30x (PSSC).

Reading 1 in each school. The instructor's salary in Newbrook was \$6,900.00 while in Radway it was \$5,917.00; a difference of \$983.00 (information procured from Faculty Workload Survey sheets). Thus a greater per pupil cost was experienced in Newbrook School because of the greater instructional salary.

No significant difference in per pupil instructional costs for Reading 2 exists. This is not surprising, however, for instruction time, course enrolment and instructors' salaries vary little.

A real difference does exist in per pupil costs of Reading 3. As before, a low enrolment-high cost trend is present. Once again, even though the enrolments in Radway and Newbrook varied by only one pupil, and the time element varied only by forty teaching minutes, the per pupil cost varied by \$29.29, the higher cost being incurred by Radway School. The instructor's salary in Radway was \$7,220.00 while in Newbrook it was \$6,080.00, a difference of \$1,140.00. Thus, it is clear that a high instructor's salary results in a proportionately higher per pupil cost. The same three factors are evidenced in the per pupil instructional costs from grade 1 through grade 12 as shown by Tables XI to XXVII, pages 111-127 .

The second, third and fourth highest per pupil costs in Division I were in Arithmetic, Enterprise and Language respectively. The same rankings are also true of per pupil costs in Division II, as shown by Table VII, page 96. The five lowest per pupil costs in Division I, in decreasing order were; Physical Education, Opening Exercises, Art, Music and Health. It is surprising, if not shocking,

to find that more time and money was expended by Division I teachers on Opening Exercises than on Art, Music and Health. In Division II, as witnessed by Table VIII, page 98, only Health per pupil costs were less than Opening Exercises costs.

The per pupil instructional costs in Division III, as shown by Table IX, page 100, were determined by the same three variables as in Division I and II. Mathematics and Language received the greatest amount of teaching time and hence the largest per pupil costs. Science and Social Studies were third and fourth, respectively. It is interesting to note that Science was considered much more important in Division III than it was in Divisions I and II. Health, Guidance, Art and Physical Education, on the other hand, incurred the lowest per pupil costs.

The low enrolment-high per pupil cost phenomenon was most vividly expressed in the instructional per pupil costs of Division IV, as shown by Table X, page 104. Take, for example, Biology 30: the enrolments in Radway, Redwater and Thorhild were 6, 9, and 18 respectively, while the accompanying per pupil costs were \$145.83, \$169.83, and \$76.38. It is clear that low enrolment results in high per pupil costs. However, even though the enrolment in Redwater School was higher, the per pupil cost was higher, the reasons being two-fold. First, Biology 30 in Redwater was offered for an additional forty minutes per week, and second, the teacher's salary allocated to Biology 30 in Redwater was \$1,528.47 while in Radway it was only \$875.00. These two reasons adequately account for

the higher per pupil cost in Redwater. The same trends were evident in the remaining subjects of Division III.

The highest per pupil costs in Division IV were experienced in Ukrainian, Science, Physics, Mathematics, French and Biology. It is interesting to note that each of the six listed subjects can be considered Matriculation subjects. It appears, therefore, that per pupil costs of Matriculation subjects were higher than non-matriculation subject costs. As previously noted, Science per pupil costs increased greatly in Division IV.

VII. PER PUPIL COSTS BY VARIOUS PROGRAMS

The programs from grades one to nine are merely grade programs; that is, each grade represents the only possible program because each student in the specified grade must study each given subject. Tables XI to XXVII, pages 111-127, reveal the per pupil costs of the grade-programs from grade one to nine or Division I to Division III. In Division IV, the pupils are given a choice as to the type of program in which they wish to enrol. In the four schools studied, (three in grades 11 and 12), only two basic programs could be realistically distinguished; matriculation and diploma. Therefore, Tables XX to XXVII show the per pupil costs in the matriculation and diploma programs of Division IV.

All the Tables unequivocally reveal that the total per pupil costs are the highest in the schools with the lowest enrolments. This trend becomes more evident as one proceeds from Division I to

TABLE XI
ESTIMATED TOTAL GRADE ONE
PER PUPIL COSTS

Area	Cost Per Pupil by School(\$)			
	Newbrook	Radway	Redwater	Thorhild
Art	8.12	10.44	6.71	4.35
Enterprise	36.52	34.80	30.33	21.72
Health	8.12	6.96	6.24	4.35
Language	27.19	23.32	15.59	10.85
Arithmetic	74.28	52.50	40.47	32.60
Music	16.24	9.39	6.71	8.70
Op. Exercises	20.29	11.48	11.14	7.18
Physical Ed.	8.12	11.48	12.73	9.34
Printing	16.24	17.40	12.57	10.85
Reading	170.47	147.22	87.18	87.54
Spelling	---	5.91	11.73	10.85
Science	20.29	17.40	10.06	8.70
Instructional Costs	405.88	348.30	251.46	217.03
Others ^a	262.50	201.62	143.73	181.40
Total Cost	668.38	549.92	395.19	398.43

^a"Others" per pupil costs calculated from Table VII by subtracting direct instructional costs from the grade level per pupil totals. In succeeding Tables of this section, "Others" per pupil costs shall refer to the total per pupil costs within the grade level less the direct instructional per pupil costs.

TABLE XII
ESTIMATED TOTAL GRADE TWO
PER PUPIL COSTS

Area	Cost Per Pupil by School(\$)			
	Newbrook	Radway	Redwater	Thorhild
Art	9.30	9.25	11.53	10.75
Enterprise	25.35	34.27	30.68	36.92
Health	5.64	8.91	6.41	6.64
Language	23.38	28.44	26.19	27.64
Arithmetic	47.05	51.40	48.08	50.93
Music	9.30	9.25	10.16	16.25
Op. Exercises	9.30	11.31	12.90	11.30
Physical Ed.	7.61	18.16	13.29	16.22
Printing	14.09	17.13	16.02	16.95
Reading	97.77	119.95	112.02	109.58
Spelling	18.88	17.13	18.32	16.95
Science	14.09	17.13	14.66	15.13
Instructional Costs	281.76	342.33	320.26	335.26
Others	262.50	201.62	143.73	181.40
Total	544.26	543.95	463.99	516.66

TABLE XIII
ESTIMATED TOTAL GRADE THREE
PER PUPIL COSTS

Area	Cost Per Pupil by School(\$)			
	Newbrook	Radway	Redwater	Thorhild
Art	9.12	11.35	5.39	5.99
Enterprise	30.40	40.23	22.16	24.73
Health	5.52	6.88	3.53	4.78
Language	79.32	28.54	16.01	16.41
Arithmetic	55.27	57.41	32.01	34.78
Music	9.12	11.35	4.52	5.99
Op. Exercises	9.12	11.35	6.38	6.87
Physical Ed.	11.05	17.19	7.08	10.15
Printing	13.82	17.19	9.72	10.41
Reading	79.32	107.61	69.53	67.77
Spelling	18.52	17.19	9.72	10.41
Science	11.88	17.19	8.73	10.05
Instructional				
Costs	332.46	343.48	194.78	208.34
Others	262.50	201.62	143.73	181.40
Total	594.96	545.10	338.51	389.74

TABLE XIV
ESTIMATED TOTAL GRADE FOUR
PER PUPIL COSTS

Area	Cost Per Pupil by School(\$)			
	Newbrook	Radway	Redwater	Thorhild
Art	7.75	9.14	10.14	8.37
Enterprise	24.51	36.55	32.54	34.78
Health	4.19	6.09	5.60	13.51
Language	22.82	36.55	29.72	34.75
Mathematics	39.18	51.77	53.62	58.05
Music	8.38	12.18	13.90	13.51
Op. Exercises	6.91	10.05	9.10	10.23
Physical Ed.	8.38	12.18	13.63	15.15
Reading	53.84	83.14	71.16	75.71
Spelling	10.48	15.23	13.86	18.59
Science	11.94	18.27	16.80	20.18
Writing	10.47	15.23	11.60	11.31
Instructional Costs	208.85	306.38	281.67	314.14
Others	246.86	238.62	159.75	192.02
Total	455.71	545.00	441.42	506.16

TABLE XV
ESTIMATED TOTAL GRADE FIVE
PER PUPIL COSTS

Area	Cost Per Pupil by School(\$)			
	Newbrook	Radway	Redwater	Thorhild
Art	12.17	9.04	13.43	11.24
Enterprise	40.47	40.10	27.74	36.42
Health	6.08	6.03	7.75	11.03
Language	35.60	40.10	44.32	32.67
Mathematics	55.69	50.35	67.13	51.92
Music	15.21	15.07	13.43	11.24
Op. Exercises	10.04	9.94	11.13	6.61
Physical Ed.	15.21	15.07	20.14	13.82
Reading	66.04	69.34	77.57	67.13
Spelling	15.21	15.97	11.90	11.63
Science	18.26	21.10	31.10	16.42
Writing	14.30	15.07	12.38	9.21
<hr/>				
Instructional				
Costs	304.28	307.18	338.02	279.34
Others	246.86	238.62	159.75	192.02
<hr/>				
Total	551.14	545.80	497.77	471.36

TABLE XVI
ESTIMATED TOTAL GRADE SIX
PER PUPIL COSTS

Area	Cost Per Pupil by School(\$)			
	Newbrook	Radway	Redwater	Thorhild
Art	7.95	18.51	11.56	7.54
Enterprise	25.25	61.53	37.10	47.30
Health	3.98	9.25	5.12	7.49
Language	22.46	55.61	28.25	38.79
Mathematics	37.17	84.66	50.12	60.42
Music	7.95	23.13	10.11	6.51
Op. Exercises	6.56	15.26	8.81	8.40
Physical Ed.	10.53	23.13	13.02	14.97
Reading	47.71	106.41	56.70	78.67
Spelling	9.93	23.13	14.80	16.64
Science	11.93	27.76	20.09	20.51
Writing	7.35	17.05	12.84	18.09
Instructional Costs	198.77	465.43	268.52	325.33
Others	246.86	238.62	159.75	192.02
Total	445.63	704.05	428.27	517.35

TABLE XVII
ESTIMATED TOTAL GRADE SEVEN
PER PUPIL COSTS

Area	Cost Per Pupil by School(\$)			
	Newbrook	Radway	Redwater	Thorhild
Art	N/O	N/O	16.20	13.09
Comm. Ec.	16.72	N/O	N/O	N/O
Dev. Rdg.	19.21	---	25.13	29.30
Guidance	5.25	N/O	N/O	N/O
Health	19.55	28.26	10.48	12.52
Home Ec.	N/O	54.44	N/O	N/O
Ind. Arts	N/O	54.75	N/O	N/O
Language	30.32	78.28	27.00	58.58
Literature	15.15	44.73	25.13	29.75
Math	53.52	51.39	32.40	57.75
Music	18.46	10.93	16.75	N/O
Oral Ukrainian	N/O	N/O	N/O	35.71
Physical Ed.	28.44	21.65	19.87	13.52
Science	31.12	67.10	41.37	32.47
Social Studies	53.60	67.10	26.60	20.09
Spelling	---	---	26.49	---
<hr/>				
Instructional				
Costs	291.34	478.63	267.42	302.78
Others	300.22	264.88	181.78	233.40
<hr/>				
Total	591.56	743.51	449.20	536.18

TABLE XVIII
ESTIMATED TOTAL GRADE EIGHT
PER PUPIL COSTS

Area	Cost Per Pupil by School(\$)			
	Newbrook	Radway	Redwater	Thorhild
Art	N/O	N/O	9.00	13.09
Comm. Ec.	13.96	N/O	16.38	30.16
Dev. Rdg.	40.62	N/O	32.38	23.98
Drama	30.30	N/O	N/O	N/O
Guidance	12.32	N/O	N/O	18.02
Health	6.16	15.34	8.59	15.81
Home Ec.	N/O	54.44	N/O	N/O
Ind. Arts	33.86	36.50	N/O	N/O
Language	19.11	62.62	50.75	66.27
Literature	11.46	35.78	32.38	24.56
Math	68.81	41.11	46.24	56.29
Music	N/O	10.93	31.73	N/O
Oral Ukrainian	N/O	N/O	N/O	9.56
Physical Ed.	18.51	10.75	16.57	15.63
Science	35.41	27.22	27.16	57.27
Social Studies	31.66	41.11	34.33	49.10
Spelling	---	---	32.32	---
Instructional				
Costs	322.18	335.80	337.83	379.74
Others	300.22	264.88	181.78	233.40
Total	622.40	600.68	519.61	613.14

TABLE XIX
ESTIMATED TOTAL GRADE NINE
PER PUPIL COSTS

Area	Cost Per Pupil by School(\$)			
	Newbrook	Radway	Redwater	Thorhild
Agriculture	N/O	20.19	30.48	N/O
Art	N/O	N/O	N/O	27.54
Comm. Ec.	46.84	N/O	N/O	N/O
Dev. Rdg.	48.93	11.35	36.68	27.98
Drama	N/O	N/O	23.58	N/O
Guidance	21.29	22.06	30.79	20.24
Health	10.66	26.68	11.02	13.96
Ind. Arts	43.07	N/O	N/O	N/O
Language	61.02	34.03	59.48	54.29
Literature	36.55	31.04	30.24	20.09
Math	47.51	64.92	60.50	46.05
Music	N/O	N/O	N/O	13.89
Oral French	N/O	N/O	31.58	22.72
Physical Ed.	31.96	32.44	50.29	12.79
Science	70.81	55.12	54.02	46.84
Social Studies	53.25	55.12	50.41	65.45
Typing	22.60	33.05	N/O	N/O
Instructional Costs	494.49	386.00	469.07	371.84
Others	300.22	264.88	181.78	233.40
Total	794.71	650.88	650.85	605.24

TABLE XX
ESTIMATED GRADE TEN MATRICULATION ROUTE
PER PUPIL COSTS

Area	Cost Per Pupil by School(\$)			
	Newbrook	Radway	Redwater	Thorhild
English 10	74.58	29.59	52.38	58.51
French 10	179.42	67.05	69.69	53.52
Math 10	96.83	79.87	43.21	65.72
Science 10	96.83	63.89	58.62	45.12
Social 10	65.08	44.68	70.56	50.16
P.E. 10	29.06	17.43	34.23	23.03
Typing 10	125.21	28.54	38.50	32.15
Instructional Costs	667.01	331.05	367.19	328.21
Others	513.19	469.62	363.41	302.88
Total	1,180.20	800.67	730.60	631.09

TABLE XXI
ESTIMATED REGULAR GRADE TEN DIPLOMA
ROUTE PER PUPIL COSTS

Area	Cost Per Pupil by School(\$)			
	Newbrook	Radway	Redwater	Thorhild
Bookkeeping 10	156.50	40.00 ^a	27.92 ^b	68.18
English 10	74.58	29.59	52.38	58.51
Math 11	156.50	209.46	28.48	71.42
P.E. 10	29.06	17.43	34.23	23.03
Rdg. 10	23.56	26.17 ^c	32.09	26.62
Social 10	65.08	44.68	70.56	50.16
Typing 10	125.21	28.54	38.50	32.15
Instructional Costs	630.49	395.87	284.16	330.07
Others	513.19	469.62	363.41	302.88
Total	1,143.68	865.49	647.57	632.95

^aAverage of Industrial Arts 10 (General) and Fabrics and Dress 10.

^bDrama 10

^cBusiness Fundamentals

TABLE XXII
ESTIMATED GRADE ELEVEN MATRICULATION ROUTE
PER PUPIL COSTS

Area	Cost Per Pupil by School(\$)			
	NewNewbrook	Radway	Redwater	Thorhild
Language 20	---	45.37	63.35	95.52 ^a
French 20	---	122.92	61.42	40.16 ^b
Lit. 21	---	116.18	68.32	36.76
Math 20	---	182.58	55.07	66.96
Biology 20	---	56.73	76.42	32.43
Science 20	---	136.91	60.16	44.20
Social 20	---	51.47	63.35	41.66
Instructional Costs	---	712.16	448.09	357.69
Others	---	469.62	363.41	302.88
Total	---	1,181.78	811.50	660.57

^aEnglish 20X

^bUkrainian 20 would raise costs per pupil by \$13.79.

TABLE XXIII
ESTIMATED REGULAR GRADE ELEVEN DIPLOMA
ROUTE PER PUPIL COSTS

Area	Cost Per Pupil by School(\$)			
	Newbrook	Radway	Redwater	Thorhild
Bookkeeping 20	---	116.36	43.70 ^a	49.99
English 23	---	45.37 ^b	55.46	54.57
Math 22	---	85.20	63.88	51.73 ^c
P.E. 20	---	116.18 ^d	78.99	40.38 ^e
Science 11	---	191.68	67.03	61.36
Social 20	---	51.47	63.35	41.66
Typing 20	---	58.18	46.67	119.99
Instructional Costs	---	664.44	419.08	419.95
Others	---	469.62	363.41	302.88
Total	---	1,134.06	782.49	722.83

^aGeography 20

^bLanguage 20

^cMathematics 21

^dLiterature 21

^eLaw 20

TABLE XXIV
ESTIMATED GRADE TWELVE MATRICULATION ROUTE
PER PUPIL COSTS

Area	Cost Per Pupil by School(\$)			
	Newbrook	Radway	Redwater	Thorhild
Biology 30	---	145.83	169.83	76.38
Chemistry 30	---	136.91	144.40	52.88
English 30	---	73.73	105.84	59.57
French 30	---	147.51	171.93	28.51
Math 30	---	254.36	171.11	149.26
Social 30	---	54.69	86.95	55.61
Bus. Fund. 20	---	26.17	38.34 ^a	28.11
Instructional Costs	---	839.20	888.40	350.32
Others	---	469.62	363.41	302.88
Total	---	1,308.82	1,251.81	653.20

^aCost given is for Law instead of Business Fundamentals.

TABLE XXV
ESTIMATED REGULAR GRADE TWELVE DIPLOMA ROUTE
PER PUPIL COSTS

Area	Cost Per Pupil by School(\$)			
	Newbrook	Radway	Redwater	Thorhild
Economics 30		56.73 ^a	63.35	60.15
English 33		73.73	105.84	59.25
Bus. Fund. 10		26.17	30.84 ^b	28.11
Law 20		40.00 ^c	38.34	40.38
Science 22		136.91 ^d	37.66	44.20 ^e
Social 33		54.69	99.24	68.17
Typing 30		58.18	46.67	115.37
Instructional Costs		446.38	421.94	415.63
Others		469.62	363.41	302.88
Total		916.00	785.35	718.51

^aBiology 20

^bRecordkeeping 10

^cFabrics and Dress 10 or Ind. Arts General 10 (average)

^dBiology 20

^eScience 20

TABLE XXVI
HIGHEST ESTIMATED GRADE TWELVE MATRICULATION ROUTE
PER PUPIL COSTS

Cost Area	Cost Per Pupil by School for Seven Most Costly Courses(\$)			
	Newbrook	Radway	Redwater	Thorhild
English 30	---	77.73	105.84	59.57
Social 30	---	54.69	86.95	55.61
French 30	---	147.51	171.93	--- ^a
Ukrainian 30	---	N/O	N/O	229.16
Math 30	---	254.36	171.11	49.26
Chemistry 30	---	136.91	144.40	52.88
Physics 30	---	161.81 ^b	171.93	85.38
Biology 30	---	145.83	169.83	76.38
Instructional Costs	---	978.84	1,021.99	608.24
Others	---	469.92	363.41	302.88
Total	---	1,448.76	1,385.40	911.12

^aFrench 30 was not one of the seven highest per pupil cost courses.

^bBookkeeping 10

TABLE XXVII

ESTIMATED TOTAL GRADE ONE THROUGH GRADE XII
PER PUPIL COSTS BY GRADES AND
PROGRAM ROUTES

Grade and/or Program Route		Cost Per Pupil by School(\$)			
		Newbrook	Radway	Redwater	Thorhild
Grade 1		668.38	549.92	395.19	398.43
2		544.26	543.95	463.99	516.66
3		594.96	545.10	338.51	389.74
4		455.71	545.00	441.42	506.16
5		551.14	545.80	497.77	471.36
6		445.63	704.05	428.27	517.35
7		584.17	743.51	449.20	536.18
8		622.40	600.68	519.61	613.14
9		794.71	650.88	650.85	605.24
10 Ma		1,180.20	800.67	730.60	631.09
10 Db		1,143.68	865.49	647.57	632.95
11 M		---	1,181.78	811.50	660.57
11 D		---	1,134.06	782.49	722.83
12 M		---	1,308.82	1,251.81	653.20
12 D		---	916.00	785.35	718.51
12 HMc		---	1,448.76	1,385.40	911.12
Average		603.58	669.37	529.81	551.08

aM refers to matriculation program or route.

bD refers to diploma program or route.

cHM refers to highest possible matriculation costs.

IV. For example, in Division I there is an increase of about 69 per-cent in per pupil costs from the school with the highest enrolment, Thorhild, to that with the lowest enrolment, Newbrook. However, in the grade 12 Matriculation program, there is an increase of approximately 101 percent from the per pupil costs of the highest enrolment school, Thorhild School, to the per pupil costs of the lowest enrolment school, Radway School. In grades one to three, the total per pupil costs range from as low as \$338.51 to as high as \$668.38, while in grades four to seven, the range was from \$428.27 to \$743.51; this reveals an increase of almost \$100.00 at both ends of the range--from \$632.95 to \$1,143.68. Grade 11 Matriculation total per pupil costs ranged from \$660.57 to \$1,181.78 while the highest grade 12 Matriculation route per pupil costs ranged from \$911.12 to \$1,448.76. It can be seen that the lowest per pupil costs in the grade 12 Matriculation program was considerably higher than the highest per pupil cost in the grades one to four program.

There is no significant difference in the per pupil costs of Matriculation and Diploma programs in Division IV. This is especially true in grades 10 and 11. The Diploma grade 10 program costs more in Thorhild by only \$1.86 and in Radway by only \$64.82, while the Matriculation grade 10 program costs more in Redwater by \$83.03 and in Newbrook by \$36.52. The Diploma grade 11 program per pupil costs are greater than Matriculation costs only in Thorhild--by \$62.26. In Redwater and Radway, the grade 11 Matriculation per pupil costs exceed the Diploma per pupil costs by \$29.01 and \$47.72,

respectively. In grade 12, the Matriculation per pupil costs in Radway and Redwater exceed Diploma costs by \$392.82 and \$466.46, respectively. Thus, there appears to be no trend of either higher per pupil Matriculation program costs or higher per pupil Diploma program costs.

CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, IMPLICATIONS, FURTHER RESEARCH

I. INTRODUCTION

This chapter presents; first, a summary of the developments in previous chapters; second, the major findings reported in the preceding chapter, and general conclusions based upon the findings; third, some recommendations and implications; and finally, suggestions for further research and study.

II. SUMMARY

The recent soaring increases in educational costs have resulted in a public clamor for more efficiency in educational spending. One way that educators can meet this challenge is to adopt a system of unit cost accounting or unit cost analysis. The main problem of this thesis, therefore, was to conduct an analysis into the financial operations of a school jurisdiction for one school term. Since this thesis was the first in a series, two stages of investigation were required: the development of a model based on performance classification, for establishing an uniform cost analysis methodology appropriate to school systems and the application of this model to the educational financial operations of the County of Thorhild for the

1967-68 school term.

The second stage required the investigation of several sub-problems; the determination of educational costs on a per pupil basis in: (1) Thorhild County, (2) the four schools of Thorhild County, (3) each grade division in Thorhild County, (4) each grade division in each of the four schools, (5) each subject taught in each school and, (6) various program areas in each of the four schools. The cost analysis was for the 1967-68 school term.

The developed model took the form of three separate and distinct phases: (1) anticipatory preparation, (2) unit costing or procedural methodology and (3) findings and analysis. Anticipatory preparation entailed (1) development of uniform terminology, (2) determination of a performance-based expenditure classification system and accounting system and (3) determination of the accounting basis: cash or accrual. Procedural methodology involved the determination of: (1) the period of time for the unit cost figure, (2) an appropriate pupil unit, (3) the areas to be included for unit costing, (4) the proration bases, standards and ratios, (5) the actual or estimated expenditures, and (6) the per pupil costs in the various chosen areas. Findings and analysis involved, first, the extrapolation and recording of significant findings and, second, the analysis of the findings in order to make comparisons, predict trends and draw inferences.

The number data was extracted from various financial accounting

statements and records in the Thorhild County office as well as from individuals. Aggregate data were procured from the ledger sheets. Cross-referenced invoices were used to obtain the necessary figures on "plant operation." Payroll summary sheets and employee payroll sheets provided the necessary "salary" data. The Superintendent's ledger gave figures for "instructional supplies," "library," and "equipment." A faculty workload survey form was utilized to procure cost and teaching data for all instructional staff. Proration ratios, based upon proration statistics, were secured mainly from primary sources. All expenditure figures had to be decomposed into school costs, grade division costs, subject costs, program area costs and all these, ultimately, into per pupil costs.

III. FINDINGS AND CONCLUSIONS

Per Pupil County Costs

The total educational expenditures, as defined by this study, for the school year 1967-68 in Thorhild County was almost a million dollars; \$941,733.49. As a per pupil county cost, this amounted to \$568.34. All the various "direct" and "indirect instructional" costs and "transportation" costs account for almost 75 percent of total school expenditures, with "instructional salaries" accounting for almost 60 percent and "transportation" for almost 15 percent. "Local school administration salaries," "central office administration salaries," "plant maintenance," "plant operation salaries" and "utilities," in descending order, accounted for almost 20 percent of

costs. It can be stated, therefore, that "instructional costs" are by far the greatest single cost incurred by school districts, accounting for at least 50 percent of costs. The second, third and fourth highest costs, in descending order, were "transportation," "local administration" and "central office administration."

Per Pupil Costs by School

The per pupil costs of the two smaller schools were significantly higher than the per pupil costs of the two larger schools. Radway School, having the smallest enrolment, also had the highest per pupil cost; \$669.37. Newbrook School, with the second lowest enrolment, had the second highest per pupil cost; \$603.58. The two larger schools had the lowest per pupil costs. However, Redwater School, even though it did not have the highest enrolment, did have the lowest per pupil cost; \$529.81. The reason for this is because "transportation" costs were reduced in Redwater due to the relatively heavy urban population as compared to Thorhild School which had a per pupil cost of \$551.08. By discounting "transportation" costs, Thorhild School, with the highest population, would have the reciprocal enrolment-cost effect of the lowest per pupil cost. Therefore, it was concluded, and further generalized, that the school pupil enrolment relationship with per pupil costs is reciprocal; i.e. the higher the enrolment, the lower the per pupil cost. It can also be inferred that this would be true in all schools where there are valid grounds for cost comparisons.

Per pupil "transportation" costs vary inversely with the density

of the rural population and population of the urban area. That is, the greater the rural population and the larger the urban population, the less the per pupil "transportation" costs.

Central Office "administration" per pupil costs were greater in the two smaller schools than the two larger schools. Further, the percentage of total per pupil costs for central office "administration" were significantly larger in the schools with the smaller pupil enrolment. Percent of total costs for central office "administration" for Radway School was 6.9 percent and for Newbrook School, 7.5 percent, while the percentages for Redwater and Thorhild were 4.2 and 3.5, respectively. It was, therefore, concluded that the smaller the school, the larger the percent of total per pupil costs devoted to central office "administration." No such trend was observed in "direct instructional" per pupil costs. This was so because "direct instructional" per pupil costs are a function, not only of pupil enrolment, but also of teacher experience and training.

There was no significant difference in the aggregate "direct instructional" per pupil costs among the four schools. The total per pupil costs ranged from \$311.69 to \$373.00.

Per Pupil County Costs by Grade Level

A substantial disparity in total per pupil costs by grade level was observed. The difference between Divisions I and IV per pupil costs was \$337.00. Divisions II, III and IV total per pupil costs increased over Division I per pupil costs by 7.3, 24.5 and 73.4 percent, respectively. Therefore, it was concluded that total

per pupil costs by grade level increase as the grade level ascends from Division I through IV.

Total per pupil costs by grade level increased as the grade levels ascend from Divisions I to IV. The largest single expenditure item within any grade level was "instructional salaries," which accounted for 54.6 to 59.9 percent of total per pupil costs. The same trend was observed for all other expenditure categories except "equipment" and "guidance counselor" costs. However, it was interesting to note, that the percentage of cost for "instructional salaries" decreased as the grade levels increased while the actual total per pupil costs for "instructional costs" increased as the grade level increased.

Central office "administration" and local school "administration" were two expenditure items where the per pupil costs increased immensely as the grade Divisions increased. Divisions II, III and IV per pupil local school "administration" costs increased over Division I by 58.4, 151.9 and 476.3 percent while the increase in central office "administration" per pupil costs increased from Divisions I to IV by 238.5 percent. Thus, it was concluded that local school and central office "administration" per pupil costs are very elastic in relation to costs by grade level.

Per Pupil Costs by Grade Division Per School

Total per pupil costs in each school by grade division was apparently a function of pupil enrolment. In each grade level, of the four schools, the highest per pupil cost was in the school with

the lowest enrolment in the particular grade level while the lowest per pupil cost was in the school with the highest enrolment in the same grade Division. An increase in enrolment did not result in a proportionate decrease in per pupil costs; however, the relationship seems to be more curvilinear than linear. Also, in each school, the per pupil cost increased as the grade levels ascended.

The above generalization was found not to be true in the expenditure items of "direct instructional salaries," "transportation services," and "utilities." "Direct instructional salaries" did not conform to the established trend of high enrolment-low per pupil cost as closely as the other expenditure items because "direct instructional salary" per pupil costs are a function not only of enrolment, but also of the teacher's experience and training. "Transportation services" per pupil costs are not a function of total school or grade level enrolments, but rather of the number of pupils bussed (the number of pupils living further than one and one-half miles from the school), as well as of the density of the rural population. Therefore, the school or grade Division with the highest rural school population density, as well as a high enrolment of pupils living within one and one-half miles from school, will have the lowest per pupil "transportation" costs. Under normal conditions, "utilities" per pupil costs would follow the low enrolment-high per pupil cost trend.

Per Pupil Direct Instructional Costs by Grade in Each School

The per pupil cost of teaching each course in the curriculum

in each school was a function of the teacher's salary as determined by experience and training, pupil enrolment in the course, and the amount of time expended by the teacher on the given subject. It appears, also, that each of these three variables is equally significant in determining the final per pupil cost.

The subjects in Division I, in all four schools, which cost the most per pupil, were Reading, Arithmetic, Enterprise and Language, in descending order while the lowest, also in descending order were, Physical Education, Opening Exercises, Art, Music and Health. This arrangement is also an ordering of subjects by importance, for the order of the subjects is equivalent to their ordering in relation to the time allotted per course. It can be concluded that Reading is considered to be the most important subject in Division I while Health is the least important; the same reasoning is also true for importance of courses in Divisions II and III but not in IV. The assumption is, of course, that a course which is considered to be of a high priority would be allotted the most teaching time while the least important course would be granted the least time.

The ordering of subjects by per pupil costs, and of importance in Division II, was the same for subjects of high cost in Division I while the ordering of the lowest costs, in descending order, were Physical Education, Music, Art, Opening Exercises, and Health. In Division III, Mathematics, Language, Science and Social Studies, in descending order, incurred the highest costs while Guidance, Health, Art and Physical Education seemed to be of least

importance and hence the lowest per pupil costs. In Division IV, Ukrainian, Science, Physics, Mathematics, French and Biology incurred the highest per pupil costs. One cannot consider the time element as being a factor of importance because Division IV courses are organized into credit units rather than time spans. It was interesting to note, that Science increased in importance by more time being allotted to it, as the course advanced from Division I through to IV. Division IV courses subscribed more closely to the low enrolment-high per pupil cost phenomenon than the subjects in the other Divisions.

It should be noted that in Division I more money was spent per pupil in conducting Opening Exercises than the teaching of Art, Music and Health. In Division II, more was spent on Health only.

Per Pupil Costs by Various Programs

In each of the program areas considered, the per pupil costs followed the high enrolment-low per pupil cost phenomenon. Further, this phenomenon was more pronounced in Division IV than in I, II or III. That is, per pupil costs increased more greatly in Division II than Division I and more in Division III than II and more in IV than III.

On the basis of this study, there appeared to be no significant difference in the per pupil costs of Division IV Matriculation and Diploma program routes.

IV. IMPLICATIONS AND RECOMMENDATIONS

This study has numerous implications and recommendations for many Alberta school systems. The primary recommendation is that all school jurisdictions should adopt a performance-based cost accounting system that would result in annual cost-analyses being conducted. The present method of accounting for school systems is organized in such a fashion as to provide necessary information for the Dominion Bureau of Statistics but is not organized to provide meaningful cost data for school boards, administrators, teachers and the public. By adopting performance-based cost accounting systems, school boards would be able to perform annual cost analyses quite readily and easily. Therefore, such cost accounting systems would be more functional, meaningful and useful than the present systems used. This study, therefore, recommends that all school systems be encouraged to adopt a well-planned performance-based cost accounting system and that these accounting systems be utilized in performing yearly cost analyses studies for the purposes outlined in Chapter I (budgeting, informing public, evaluating business administration).

It is recommended that longitudinal cost analyses studies, if the findings are to be compared, should consider the increase of costs due to inflation by using a price index to weigh the various yearly figures.

The implications of this study reach far afield, and bring to light many questions and problems: Do we want to change the

priority of spending in the various expenditure categories, in different programs or in different subjects? Do we want to change the emphasis on proportions of time allocated to different subjects? Will accurate cost data information encourage school centralization? Will teachers and administrators in the schools use their resources more wisely? Will the business administrators of schools and school systems become more efficient? Will the public respond more to the financial needs of schools or will they withdraw their support? Will cost analyses studies somehow improve the educational process and thereby improve the end product? These are some of the implications of adopting unit cost analyses as an integral part of the school financial accounting system.

V. SUGGESTIONS FOR FURTHER RESEARCH

This study was concerned with the analysis of educational per pupil costs in only one school system and for only one school term. Before any significant and valid inferences can be drawn and trends predicted, it is necessary to conduct many cost analyses studies in various school jurisdictions, some jurisdictions having similar characteristics, others, different characteristics. Also, these studies should be conducted on a longitudinal basis rather than at one point in time. By banking all the information from many longitudinal cost analyses studies in a central data storage, significant and valid inferences and predictions could be made about educational per pupil costs in Alberta and Canadian elementary

and secondary schools.

School centralization and consolidation has been, is, and will continue to be for some time, a major issue and problem for Alberta educators. Thorhild County, during the 1968-69 school term, built a centralized Vocational-Academic High School. If another cost study could be conducted on that system for the 1969-70 or 1970-71 school term, then more unequivocal conclusions could be made about the operating efficiency of a large-enrolment high school as opposed to that of a small high school. A follow-up cost analysis study on Thorhild County could indicate if the new curriculum programs affect the per pupil operating costs.

The implied curvilinear relationship between enrolment and per pupil costs suggests that perhaps a "law of diminishing returns" exists as far as number of pupils enrolled are concerned. That is, perhaps there is a maximum number of pupils that should be enrolled in a subject, program or school in order to obtain optimal operating efficiency and results. Thus, further educational cost analysis research is required in this area.

Another area, where further cost analysis research is needed, is in the field of the present Alberta School Foundation Program, presently under study by the Department of Education. Cost studies would indicate the adequacy or inadequacy of the Foundation Program grant structure.

There is also a need to study the relationship of educational costs with that of the benefit or quality derived. A cost study

should incorporate some more sophisticated means of measuring output rather than just the completion of a student year.

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APPENDIX A

CLASSIFICATION OF SUBJECTS USED TO DETERMINE
PER PUPIL INSTRUCTIONAL COSTS

Art	Math	Reading
Enterprise	Music	Spelling
Health	Opening Exercises	Science
Language	Physical Education	Writing (Printing)

Figure 6. Classification of Division I subjects offered in the schools of Thorhild County.

Art	Math	Reading
Enterprise	Music	Spelling
Health	Opening Exercise	Science
Language	Physical Education	Writing

Figure 7. Classification of Division II subjects offered in the schools of Thorhild County.

Agriculture IX ^a	Literature
Art	Mathematics
Community Economics	Music
Developmental Reading	Oral French
Drama	Physical Education
Guidance	Science
Health	Social Studies
Home Economics	Spelling VII and VIII
Industrial Arts	Typing IX
Language	

Figure 8. Classification of Division III subjects offered in Thorhild County schools.

^aA Roman numeral following a subject signifies that the subject is offered only to the grade specified by the Roman numeral.

Biology 20	Mathematics 10
30	11
	12
Bookkeeping 10	20
20	21
	22
Business Fundamentals 10	30 (New)
Chemistry 30	Office Practice 20
Drama 10	Physical Education 10
	20
Economics 30	Physics 30
English 10	Reading 10
20X	Record Keeping 10
23	Science 10
30	11
33	20
Fabrics and Dress 10	22
French 10	Social Studies 10
20	20
30	30
Geography 20	33
Industrial Arts-General 10	Sociology 20
Language 20	Typing 10
Law 20	20
	30
Literature 20	Ukrainian 10
21	20
	30

Figure 9. Classification of Division IV subjects offered in the schools of Thorhild County.

APPENDIX B

GENERAL DESCRIPTION OF ENROLMENTS, AND INSTRUCTIONAL
AND ADMINISTRATIVE STAFF

TABLE XXVIII
ENROLMENTS OF THORHILD COUNTY SCHOOLS BY GRADE DIVISION
AS OF SEPTEMBER 30, 1967

Division	School				Total
	Newbrook	Radway	Redwater	Thorhild	
I	60	60	143	137	400
II	77	55	135	146	413
III	96	73	160	155	484
IV	18 ^a	58	108	176	360
Totals	251	246	546	614	1,657

^aGrade X only.

Source: "1967-68 School Registration Form: Form A". This summary form of enrolments, staff and subjects offered had to be submitted to the Superintendent's office by the end of September. The form, then, had to be approved by the local Superintendent as well as the Regional High School Inspector. Therefore, this form constituted a legal document correct in all respects.

TABLE XXIX
NUMBER OF INSTRUCTIONAL AND ADMINISTRATIVE STAFF
IN THORHILD COUNTY BY SCHOOL

Staff	Number per School				Total
	Newbrook	Radway	Redwater	Thorhild	
Teachers	10	12	23	26	71
Principals	1	1	1	1	4
Vice- Principals	1	1	2	1	5
Total ^a	12	14	26	28	80

^aOne guidance counselor served the entire system as well as a Department of Education Superintendent.

Source: "1967-68 School Registration Form: Form A."

APPENDIX C

TABLES SHOWING PRORATION RATIOS USED TO ALLOCATE
SPECIFIED EXPENDITURES TO THE
VARIOUS GRADE LEVELS

TABLE XXX
 NUMBER OF PUPILS PRORATION RATIOS USED TO ALLOCATE
 VARIOUS SPECIFIED EXPENDITURES TO
 GRADE LEVELS

School	Proration Ratio Per Division(%)				Proration Total by School
	I	II	III	IV	
Newbrook	23.9	30.7	38.2	7.2	15.1
Radway	24.4	22.4	29.6	23.6	14.8
Redwater	26.2	24.7	29.3	19.8	33.0
Thorhild	22.3	23.8	25.2	28.7	37.1
Proration by Total in Division	24.1	24.9	29.2	21.8	100.0

Source: Table XXVIII of Appendix B (conversion of all enrolment data into proration percentage ratios).

TABLE XXXI

PRORATION RATIOS USED TO ALLOCATE SCHOOL ADMINISTRATION COSTS
(200 b.1) PER GRADE DIVISION AS ESTIMATED BY
EACH RESPECTIVE ADMINISTRATOR

School	Administra- tive Position	Proration Ratio Per Division				Total
		I	II	III	IV	
Newbrook	P ^a	20	20	50	10	100
	VP ^b	20	20	40	20	100
Radway	P	10	15	20	55	100
	VP	5	10	25	65	100
Redwater	P	10	15	15	60	100
	VP	5	10	25	60	100
	VP	5	5	30	60	100
Thorhild	P	5	10	30	55	100
	VP	5	15	30	50	100
Average ^c		6	11	25	58	100

^aPrincipal (to be referred to as P in succeeding tables)

^bVice-Principal (referred to as VP in succeeding tables)

^cNewbrook excluded from average because Division IV entailed only grade X.

TABLE XXXII

PRORATION RATIOS USED TO ALLOCATE LIBRARY COSTS (200 c.2)
PER GRADE DIVISION AS ESTIMATED BY
THE RESPECTIVE ADMINISTRATORS

School	Proration Ratio Per Division(%)				Total
	I	II	III	IV	
Newbrook	23.9	30.7	38.2	7.2	100
Radway	30	30	30	10	100
Redwater	26.2	24.7	29.3	19.8	100
Thorhild	0.0	0.0	30	70	100

(NOTE: It would be unfair to average the allocations per grade level because (1) Thorhild attempted to refurnish their high school library, while(2) Newbrook's Division IV contains only grade 10.

TABLE XXXIII
PRORATION RATIOS USED TO ALLOCATE COSTS OF INSTRUCTIONAL
SUPPLIES (200 c.3) PER GRADE DIVISION
AS ESTIMATED BY EACH
ADMINISTRATOR

School	Proration Ratio Per Division(%)				Total
	I	II	III	IV	
Newbrook	25	35	25	15	100
Radway	20	25	25	30	100
Redwater	30	25	25	20	100
Thorhild	15	20	25	40	100
Average ^a	22	25	23	30	100

^aNewbrook School not included.

TABLE XXXIV

PRORATION RATIOS USED TO ALLOCATE COSTS OF PLANT OPERATION
SALARIES (600.a), UTILITIES (600.b), SUPPLIES (600.c)
AND OTHERS (600.e) AS ESTIMATED
BY THE ADMINISTRATORS

School	Proration Ratio Per Division(%)				Total
	I	II	III	IV	
Newbrook	25	27	29	19	100
Radway	17	21	26	36	100
Redwater	19	22	26	33	100
Thorhild	19	21	25	35	100
Average ^a	18	21	26	35	100

^aNewbrook estimates excluded from average.

SERIES 100, a. RECORD OF ADMINISTRATION SALARIES:
THORHILD COUNTY 1967-1968

Name	Position	Code No.	Total Salary	% of Time in Ed. Matters	Prorated Salary for Ed. Matters
Totals					

Code Numbers

- | | |
|----------------------------|--|
| 1. School board member | 9. Centralized research |
| 2. Board secretary office | 10. School census enumeration |
| 3. Treasurer's office | 11. Business administration
office |
| 4. School elections | 12. Fiscal control |
| 5. Legal services | 13. Administration of office
building and grounds |
| 6. Superintendent's office | 14. Purchasing office |
| 7. Personnel office | 15. Printing and publishing |
| 8. Public relations | 16. others |

SERIES 100, b. RECORD OF ADMINISTRATION EXPENSES:
THORHILD COUNTY 1967-1968

Items	Cost	Items	Cost
Total		Total	

Items: expenses, other than salaries, incurred by district employees (as outlined in 100, a.) in connection with the system-wide administration of the school.

THORHILD COUNTY FACULTY WORKLOAD SURVEY: 1967-1968

(1)	(2)	(3)	(4) ^a	(5)	(6) ^b	(7)	(8) ^c	(9)
Faculty member (name)	Code	Teaching Salary (basic)	Other Salary	Total Teaching Salary	Courses taught and Level	Course time min. per wk.	% of Total Time	Course Enrol- ment
Totals(columns)								

Instructions for Completing Faculty Workload Survey Form

a(4) Indicate source or reason for "other salary" a. administrator, consultant, counsellor, librarian, etc.
b. fringe benefits

b(6) Release time (preparation, spare, supervision) as well as administration, consultation, counselling, library, and audio-visual duties indicated separately.

c(8) % of total time = $\frac{\text{time spent in course} \times 100}{\text{total teaching time (column 7 total)}}$

THORHILD COUNTY FACULTY WORKLOAD SURVEY: 1967-1968 (continued)

<u>% of time spent</u> <u>per school</u>	<u>Designated official</u> <u>position</u>	<u>Time spent per</u> <u>specified duties</u>	<u>% of time devoted</u> <u>per division other</u> <u>than teaching or</u> <u>release time</u>
Newbrook _____	Teacher _____	Teaching _____	Primary (grades 1-3) _____
Radway _____	Administrator _____	Administration _____	Elementary (grades 4-6) _____
Redwater _____	Consultant _____	Audio-Visual _____	Junior High (gr. 7-9) _____
Thorhild _____	Counselor _____	Consulting _____	Senior High (gr. 10-12) _____
Total = 100%	Department Head _____	Counseling _____	Total = 100%
	Librarian _____	Department Head _____	
	Other (state) _____	Library _____	
		Release time _____	
		Total = 100%	

[illegible]

FACULTY MEMBER:
(name and/or code)

SCHOOL: _____
Newbrook _____
Radway _____
Redwater _____
Thorhild _____

INSTRUCTIONAL COSTS PER STUDENT PER COURSE

Columns (1-4) and (9): Transferred from Faculty Workload Survey sheets.

Column (5): Cost per course = $\text{column (1)} \times \frac{\text{column (4)}}{100}$

Column (6): % of release time per course = $\frac{\text{amount of time per course}}{\text{actual teaching time}} \times 100$

Column (7): Cost of release time per course = total cost of release time (from column 5 x % in column (6)

Column (8): Total instructional cost = columns (5) + (7)

Column (10): Instructional cost per student per course = column (8) divided by column (9)

*Steps or columns 4, 5, 6, and 7 can be eliminated by using the following proration formula:

Total instructional cost =

$$\frac{\text{time spent in course (column 3)} + \left(\frac{\text{total release time}}{\text{actual teaching time}} \times \text{time spent in course} \right)}{\text{total teaching time (total from column 4)}}$$

DAILY TIME-RECORD SHEET

NAME: _____ CODE: _____

POSITION: _____ SCHOOL: _____

TIME PERIOD COVERED: _____ SALARY: _____
(Two weeks)

DATES	TIME SPENT PER DIVISION IN MINUTES				TOTALS
	PRIMARY Grades 1-3	UPPER ELEMENTARY Grades 4-6	JUNIOR HIGH Grades 7-9	SENIOR HIGH Grades 10-12	
Day 1					
Day 2					
Day 3					
Day 4					
Day 5					
Day 6					
Day 7					
Day 8					
Day 9					
Day 10					
Totals					

ESTIMATED PERCENTAGE OF TIME SPENT

PER DIVISION^a: PRIMARY _____

UPPER ELEMENTARY _____

JUNIOR HIGH _____

SENIOR HIGH _____

^aPercent of time spent per division =

$$\frac{\text{total time in specified division for two weeks}}{\text{total time in all four divisions for two weeks}} \times 100$$

SERIES 200, c. DETERMINATION OF NON-SALARY INDIRECT INSTRUCTIONAL COSTS PER DIVISION

School _____ Year _____

[illegible]

^a P.R. = proration ratio based on a percent

^b E.C. = estimated cost; determined by multiplying the total category by the proration percentage

Legend P.R. Basis

T:	time	NP:	number of
T-F-A:	time-floor-area		pupils
ADM:	average daily mem.	M:	mileage
HC:	hours consumption	QC:	quantity consumed

SERIES 200, C. RECORD OF NON-SALARY INDIRECT INSTRUCTIONAL COSTS

a Category: _____ Thorhild County, 1967-68

[illegible]

a Categories:

1. Textbooks
2. Libraries
3. Supplies
4. Correspondence
5. Equipment
6. Others

^bBasis of Proration Ratio:

T:	Time	M:	Mileage
TFA:	Time Floor Area	QC:	Quantity Consumed
ADM:	Average Daily Membership		
HC:	Hours Consumption		
NP:	Number of Pupils		

Proration Ratio based
on percentage

d Estimated Cost determined by multiplying cost times P.R.

ADMINISTRATIVE COSTS PER STUDENT PER COURSE (SERIES 200,b.)

(To be Completed by Administrators, Librarians,
Guidance Counselors, and Department
Heads Only.)

1. Faculty member (name and/or code) _____

2. Position _____ 2. School _____

4. Basic teaching salary _____

5. Actual teaching salary _____

$\frac{\text{minutes taught per week}}{\text{total teaching minutes per week}} \times \text{basic teaching salary}$

6. Administrative allowance _____

7. Actual administrative allowance _____

(adm. allowance + basic teaching salary - actual teaching salary)

8. Actual time spent in administration per week _____ (min.)

(total school minutes per week - total teaching min. per wk.)

9. Amount of administrative time spent per grade division:

Primary (1-3) _____%	Information transferred from "Daily time-Record Sheet" kept by the admin- istrator for two weeks.
Upper ele. (4-6) _____%	
Junior High (7-9) _____%	
Senior High (10-12) _____%	
100%	

10. Allocation of actual administrative salary per grade division:
(Actual administrative salary x % of time spent per division)

Primary _____
Upper ele. _____
Junior high _____
Senior high _____
Total _____

B29925